

Computer-**a**ided **S**ystem For Health **E**conomic **E**valuation

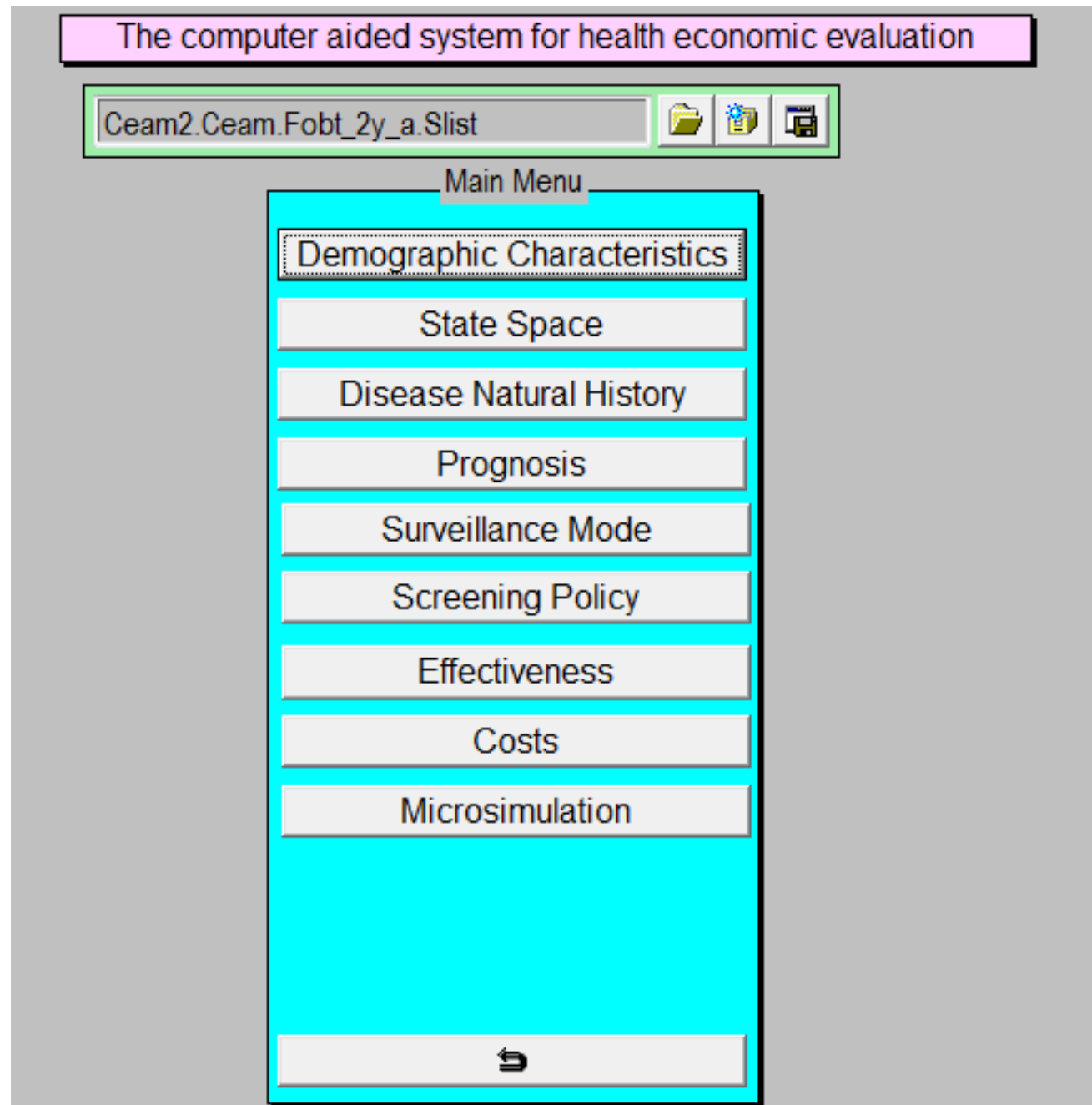


Program

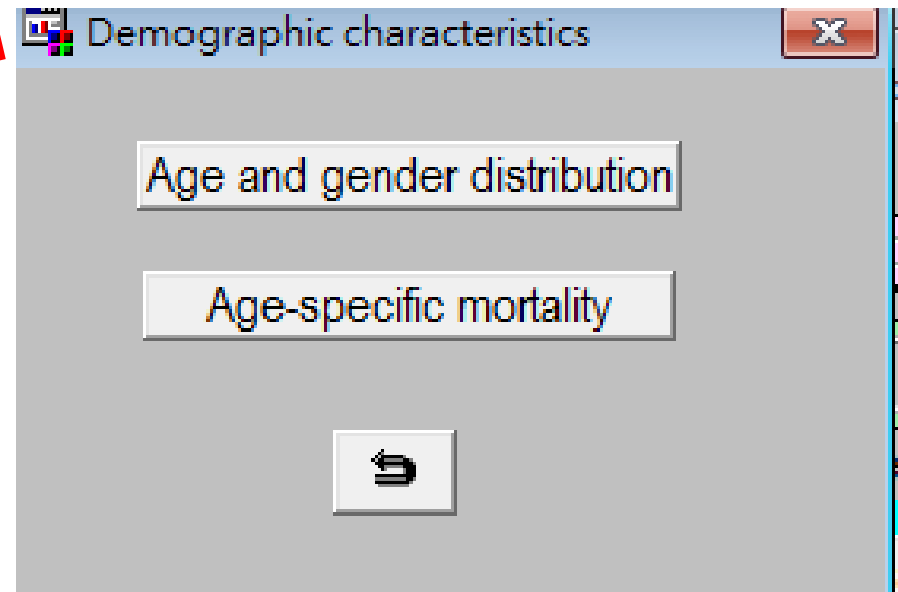
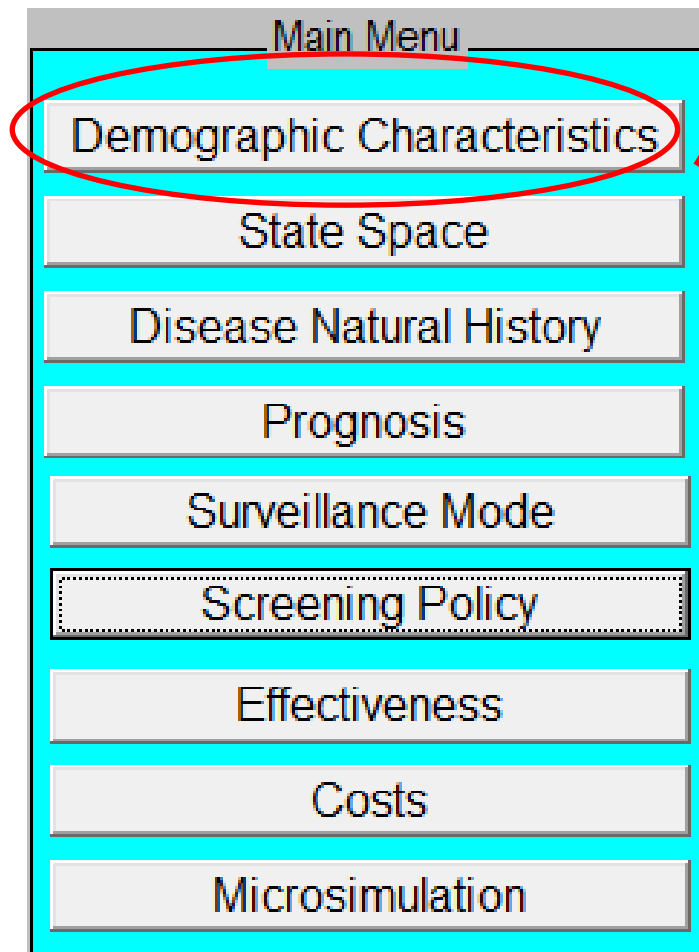
```
libname ceam2 'c:\ceam2';  
dm 'af  
c=ceam2.main.main.frame' ;  
run;
```

Example : 'c:ceam2\ceam\fobt_2y

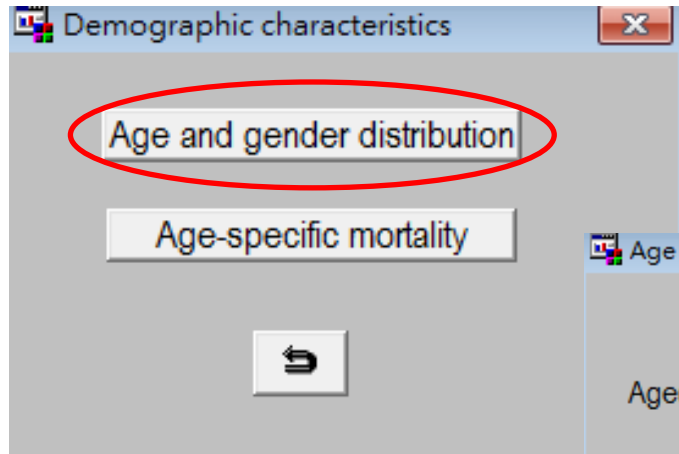
Main Menu



Demographic Characteristics



Age and Gender Distribution



Age and gender distribution

Proportion of male :

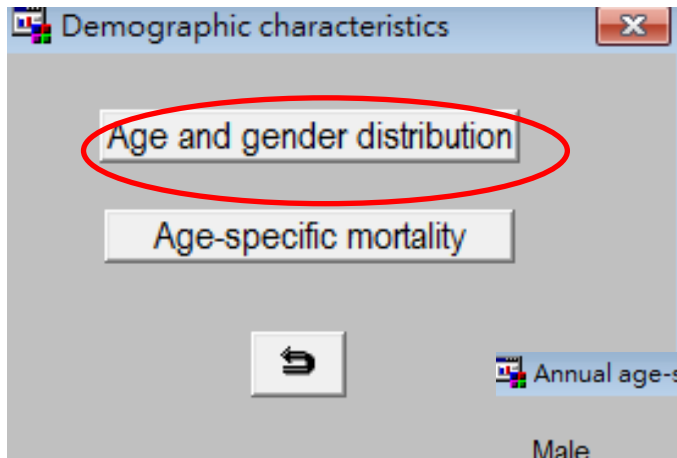
Age(years)	0	1	2	3	4	5	6	7	8	9
30s	.0355	.0355	.0355	.0355	.0355	.0355	.0355	.0355	.0355	.0355
40s	.0322	.0322	.0322	.0322	.0322	.0259	.0259	.0259	.0259	.0259
50s	.0159	.0159	.0159	.0159	.0159	.0160	.0160	.0160	.0160	.0160
60s	.0137	.0137	.0137	.0137	.0137	.0114	.0114	.0114	.0114	.0114
70s	.0084	.0084	.0084	.0084	.0084	.0055	.0055	.0055	.0055	.0055

Proportion of female : 0.49

Age(years)	0	1	2	3	4	5	6	7	8	9
30s	.0355	.0355	.0355	.0355	.0355	.0355	.0355	.0355	.0355	.0355
40s	.0322	.0322	.0322	.0322	.0322	.0259	.0259	.0259	.0259	.0259
50s	.0159	.0159	.0159	.0159	.0159	.0160	.0160	.0160	.0160	.0160
60s	.0137	.0137	.0137	.0137	.0137	.0114	.0114	.0114	.0114	.0114
70s	.0084	.0084	.0084	.0084	.0084	.0055	.0055	.0055	.0055	.0055

Navigation arrow

Annual age-specific mortality of competing cause of death



A screenshot of a software window titled 'Annual age-specific mortality of competing cause of death'. It displays two tables of mortality rates. The first table is for 'Male' and the second is for 'Female'. Both tables have 11 columns representing age groups from 30~34 to 80~84. The values are decimal numbers representing mortality rates.

Male

30~34	35~39	40~44	45~49	50~54	55~59	60~64	65~69	70~74	75~79	80~84
0.01060	0.01357	0.01927	0.02717	0.04039	0.05917	0.08609	0.11947	0.18428	0.30675	0.70000

Female

30~34	35~39	40~44	45~49	50~54	55~59	60~64	65~69	70~74	75~79	80~84
0.00391	0.00556	0.00773	0.01200	0.01904	0.02958	0.04838	0.08115	0.13726	0.22959	0.50000

State Space

Main Menu

Demographic Characteristics

State Space

Disease Natural History

Prognosis

Surveillance Mode

Screening Policy

Effectiveness

Costs

Microsimulation

State Space

State:

State	Name	Detectable
1	Normal	Yes
2	Small Polyp	Yes
3	Large Polyp	Yes
4	Preclinical A&B	Yes
5	Preclinical C&D	Yes
6	Clinical A&B	No
7	Clinical C&D	No

Clear View Log View Output Exit

Disease Natural History

Main Menu

- Demographic Characteristics
- State Space
- Disease Natural History
- Prognosis
- Surveillance Mode
- Screening Policy
- Effectiveness
- Costs
- Microsimulation

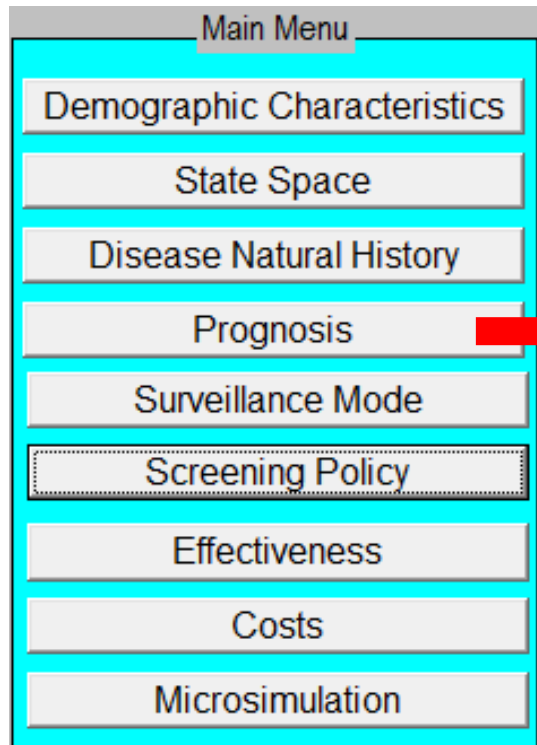
Disease Natural History

Transition Matrix

	To						
From	1	2	3	4	5	6	7
1	-0.0045	0.0045					
2		-0.0346	0.0346				
3			-0.0215	0.0215			
4				-0.6079	0.3697	0.2382	
5					-0.4852		0.4852
6						0	
7							0

Clear View State Space View Log View Output Exit

Prognosis



The 'Prognosis' window displays a table titled 'State-specific mortality'. The table has three columns: 'State', 'Name', and 'Mortality'. It lists seven states with their corresponding names and mortality rates. Below the table is a scrollable area for additional data. At the bottom of the window are five buttons: 'Clear', 'View State Space', 'View Log', 'View Output', and 'Exit'.

State	Name	Mortality
1	Normal	0
2	Small Polyp	0.0002
3	Large Polyp	0.002
4	Preclinical A&B	0.0302
5	Preclinical C&D	0.2099
6	Clinical A&B	0.0302
7	Clinical C&D	0.2099

Surveillance Mode

Main Menu

- Demographic Characteristics
- State Space
- Disease Natural History
- Prognosis
- Surveillance Mode 
- Screening Policy
- Effectiveness
- Costs
- Microsimulation

Surveillance Mode

State	Name	Status_after_tx	Surveillance	Interval	Num Neg*
1	Normal		No		
2	Small Polyp	1	Yes	5	1
3	Large Polyp	1	Yes	3	2
4	Preclinical A&B	4	No		
5	Preclinical C&D	5	No		
6	Clinical A&B		No		
7	Clinical C&D		No		

* Number of negative finding for returning normal.

Clear **Complication** View State Space View Log View Output Exit

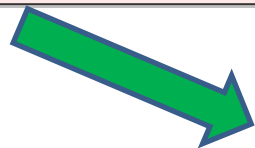


Complication

Surveillance Mode

Surveillance					
State	Name	Status_after_tx	Surveillance	Interval	Num Neg*
1	Normal		No		
2	Small Polyp	1	Yes	5	1
3	Large Polyp	1	Yes	3	2
4	Preclinical A&B	4	No		
5	Preclinical C&D	5	No		
6	Clinical A&B		No		
7	Clinical C&D		No		

* Number of negative finding for returning normal.



Complication

Complication at screening

Incidence / year

Fatality

Complication at diagnosis

Incidence / year

Fatality

Complication at Surveillance

Incidence / year

Fatality

Detail of Intervention Program

Detail of Intervention Program

Main Menu

- Demographic Characteristics
- State Space
- Disease Natural History
- Prognosis
- Surveillance Mode
- Screening Policy**
- Effectiveness
- Costs
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Details of Intervention Program

Screening

Interval year

Period year

Age ~

Follow-Up years

Accuracy View Log View Output Exit



Details of Intervention Program

Screening

Interval year

Period year

Age ~

Follow-Up years

[Accuracy](#) [View Log](#) [View Output](#) [Exit](#)

Accuracy

Accuracy

State	Name	Accuracy	Absorbing
1	Normal	0.975	No
2	Small Polyp	0.05	No
3	Large Polyp	0.1	No
4	Preclinical A&B	0.5	Yes
5	Preclinical C&D	0.5	Yes

[Clear](#) [View Log](#) [View Output](#) [Exit](#)

Effectiveness

Main Menu

- Demographic Characteristics
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- Effectiveness
- Costs
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Effectiveness

State	Name	Effectiveness	Utility
1	Normal	1	1
2	Small Polyp	1	1
3	Large Polyp	1	1
4	Preclinical A&B	1	0.8
5	Preclinical C&D	1	0.5
6	Clinical A&B	1	0.7
7	Clinical C&D	1	0.3

(per cycle)

Clear View State Space View Log View Output Exit

Cost

Main Menu

Demographic Characteristics

State Space

Disease Natural History

Prognosis

Surveillance Mode

Screening Policy

Effectiveness

Costs

Microsimulation

Costs (Unit : USD)

Direct costs

Items	Treatment(per cycle)	lifetime
Normal	0	0
Small Polyp	0	42.4
Large Polyp	0	42.4
Preclinical A&B	176.5	3117.6
Preclinical C&D	176.5	3117.6
Clinical A&B	176.5	7705.9
Clinical C&D	176.5	7705.9
Complication	0	1617.6
Diagnostic	0	1617.6
Surveillance	0	1617.6

Indirect costs

Items	Treatment(per cycle)	Lifetime
other	0	0

AddDel

Screening costs

0.6

(per cycle)

Diagnostic costs

100

(per cycle)

Surveillance costs

66.2

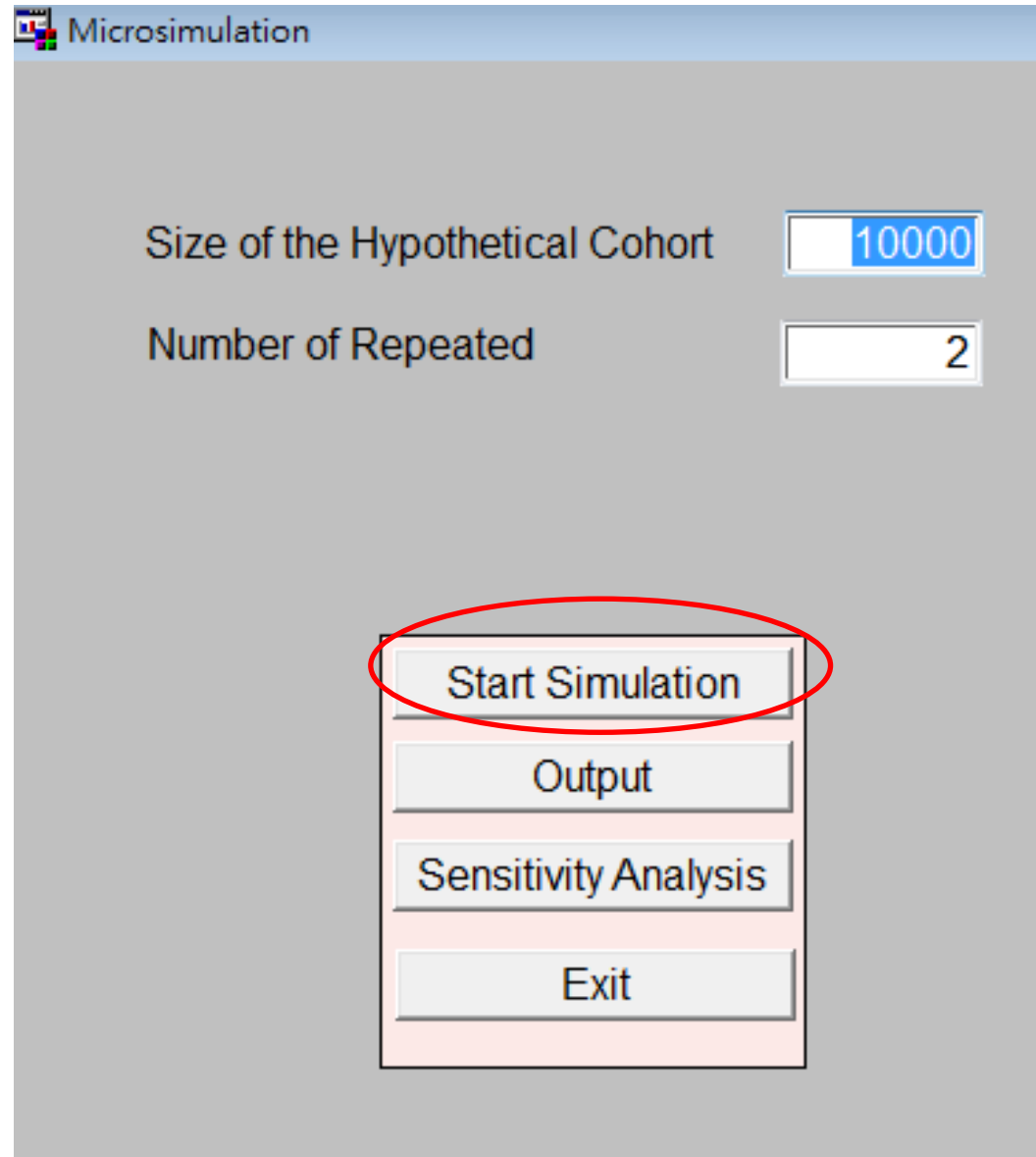
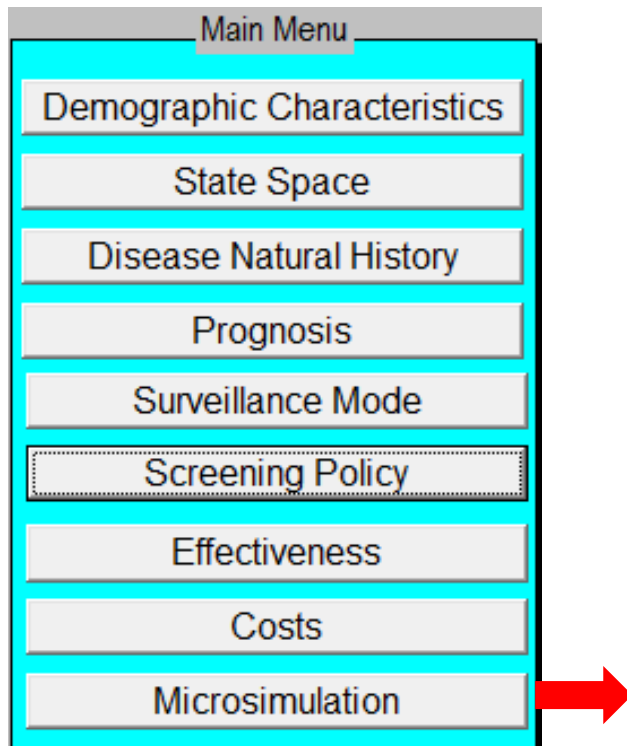
(per cycle)

Discount rate

0.03

ClearView LogView OutputExit

Microsimulation



Results of Base-Case Estimation

Economic Evaluation for Cancer Screening		
Multi-Sate Monte-Carco Simulation		
	Screening	Control
ICER	Dominate	
ICUR	Dominate	
COST	189.1765	224.2212
EFFECTIVENESS	12.1725	12.1379
UTILITY	12.1240	12.0659
NORMAL	0.6760	0.5979
SMALL POLYP	0.0591	0.0764
LARGE POLYP	0.0415	0.0889
PRECLINICAL A&B	0.0067	0.0025
PRECLINICAL C&D	0.0011	0.0011
CLINICAL A&B	0.0038	0.0085
CLINICAL C&D	0.0009	0.0026
DEATH	0.0155	0.0266

Sensitivity Analysis

Microsimulation

Size of the Hypothetical Cohort

Number of Repeated

Start Simulation

Output

Sensitivity Analysis

Exit



Sensitivity Analysis

Step 1: Please Choose the category in which the parameter of interests is.

Category

Disease Natural History

Prognosis

Screening Policy

Complication

Effectiveness

Costs

Sensitivity Define



Setp 2: Choose the variable of interests

☒ Screening

☒ Interval

☐ Period

☐ Follow-Up

View Basecase

Exit

Sensitivity

Size of the Hypothetical Cohort

1000

Number of Repeated

2

View	State	Variable	Base	Increment	Lower	High
		SCREENINTERVAL	2	1	1	3

Run

Excel

Clear

View Log

View Output

Exit

Press “Run” first,
then press “Excel”

Results of Sensitivity

Economic Evaluation for Cancer Screening														
Multi-Sate Monte-Carco Simulation														
SCREENI INTERVAL		ICER	ICUR	COST	EFFECTIV ENESS	UTILITY	NORMAL	SMALL POLYP	LARGE POLYP	PRECLINICAL A&B	PRECLI NCAL C&D	CLINICAL A&B	CLINICAL C&D	DEATH
1	Screening	Less Efficacy	Dominate	165.4151	12.1633	12.1357	0.7245	0.0500	0.0180	0.0050	0.0005	0.0010	0.0000	0.0100
	Control			214.4946	12.2208	12.1615	0.6185	0.0700	0.0810	0.0040	0.0005	0.0085	0.0015	0.0250
2	Screening	Dominate	Dominate	168.4990	12.1923	12.1530	0.6815	0.0565	0.0435	0.0095	0.0010	0.0020	0.0005	0.0145
	Control			172.9686	12.1193	12.0648	0.5965	0.0855	0.0885	0.0015	0.0005	0.0055	0.0025	0.0285
3	Screening	Dominate	Dominate	186.0899	12.2593	12.2039	0.6610	0.0625	0.0535	0.0075	0.0030	0.0040	0.0005	0.0170
	Control			208.7276	12.1241	12.0593	0.5955	0.0845	0.0895	0.0030	0.0010	0.0050	0.0030	0.0275