

# Cost-effectiveness of Integrating Breast Cancer Screening into an Existing Cervical Cancer Screening Program in Cameroon



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## BACKGROUND AND OBJECTIVE

- Breast cancer is the leading cause of female cancer mortality in Cameroon, driven by limited screening.
- Clinical Breast Exam (CBE) is a recognized early-detection method.
- We estimated the cost-effectiveness and mortality benefit of integrating CBE into Cameroon's existing cervical cancer screening program within a health system.

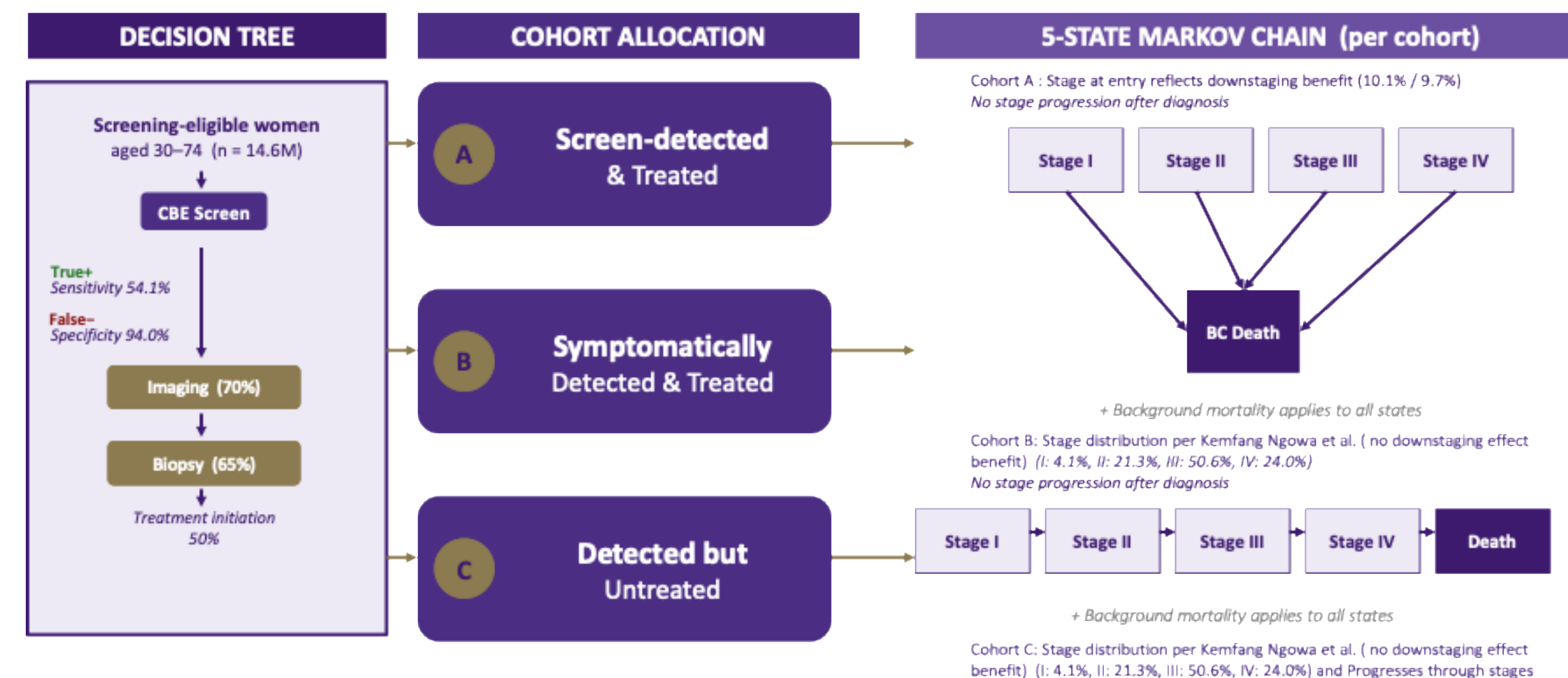
## METHODS

### Model Structure

- Hybrid cohort and decision tree model simulating breast health trajectories in screen-eligible Cameroonian women aged 30–74 years
- Health system perspective
- Decision tree captured screen-detected and symptomatically detected cases under each screening cadence
- Women assigned to parallel Markov models: screen-detected & treated, symptomatically detected & treated, or detected but untreated

### Health States

- Models included stage I–IV breast cancer and death
- Treated women remained in diagnosed stage; untreated women progressed per natural history
- Screening benefit modeled as stage downstaging for treated screen-detected cases



### Screening Strategies

- Base Case – Opportunistic CBE:** CBE offered opportunistically alongside cervical cancer screening visits; compliance = 1/3 % (real world 3-year cervical screening attendance rate divided by 3), reflecting how the program actually operates in Cameroon
- Scenario Analyses**
  - Scenario 1 – Optimistic Annual CBE:** CBE is offered annually. Compliance is 1%, applying the observed three-year cervical screening compliance rate as annual CBE uptake. This is an aspirational scenario based on breast cancer screening guidance.
  - Scenario 2 – Organized Triennial CBE:** CBE is offered every 3 years. Compliance is 1% in screening years and 0% in off-years, reflecting an organized invited program that is not currently in place in Cameroon.

### Model Inputs

- Costs: clinic-based micro-costing in Cameroon (CBE training costs, nursing time and salaries)
- Epidemiological parameters, disability weights, and downstaging effects from published literature
- Women diagnosed with breast cancer followed over remaining lifetime, starting at midpoint age of each age band
- All costs are expressed in 2025 USD; A discount rate of 3% per annum is applied to both costs and outcomes.

## RESULTS

Base case	Cervical cancer screening only	Integration	Incremental Results
<b>Costs</b>	\$0	\$37,403	\$37,403
<b>Life-Years</b>	370,622	335,151	(35,471)
<b>Death From BC</b>	2,736,085	2,475,464	260,621
<b>DALYs</b>	17,039,442	15,417,958	1,621,484
<b>Death Averted ICER</b>			\$0.14
<b>DALY Averted ICER</b>			\$0.02
Annual	Cervical cancer screening only	Integration	Incremental Results
<b>Costs</b>	\$0	\$94,208	\$94,208
<b>Life-Years</b>	370,622	335,168	(35,454)
<b>Death From BC</b>	2,736,085	2,475,329	260,756
<b>DALYs</b>	17,039,442	15,417,034	1,622,408
<b>Death Averted ICER</b>			\$0.36
<b>DALY Averted ICER</b>			\$0.06
Triennial	Cervical cancer screening only	Integration	Incremental Results
<b>Costs</b>	\$0	\$37,606	\$37,606
<b>Life-Years</b>	370,622	342,535	(28,087)
<b>Death From BC</b>	2,736,085	2,505,942	230,143
<b>DALYs</b>	17,039,442	15,543,427	1,496,015
<b>Death Averted ICER</b>			\$0.16
<b>DALY Averted ICER</b>			\$0.03

## CONCLUSION

Adding CBE opportunistically to existing cervical cancer screening programs in Cameroon is a cost-effective strategy for early breast cancer detection.