Targeted Screening Interventions for Breast Cancer: Impact on Economic and Health Outcomes in Disadvantaged Populations

HPR190

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Introduction

Preliminary study
- **Regional Disparities:** Screening rates below expectations in 16 IRIS areas, highlighting significant geographic disparities, especially in disadvantaged groups.
- **HDI and Screening:** Higher Human Development Index (HDI) scores correlated with increased screening participation.
- **Barriers to Participation:** Public transport access, working category and being a single working woman were linked to lower screening rates.

Objective

To evaluate the budgetary impact of lower breast cancer screening rates among disadvantaged populations in Nice, France, and assess how targeted local measures could improve costs and outcomes using a simulation model.
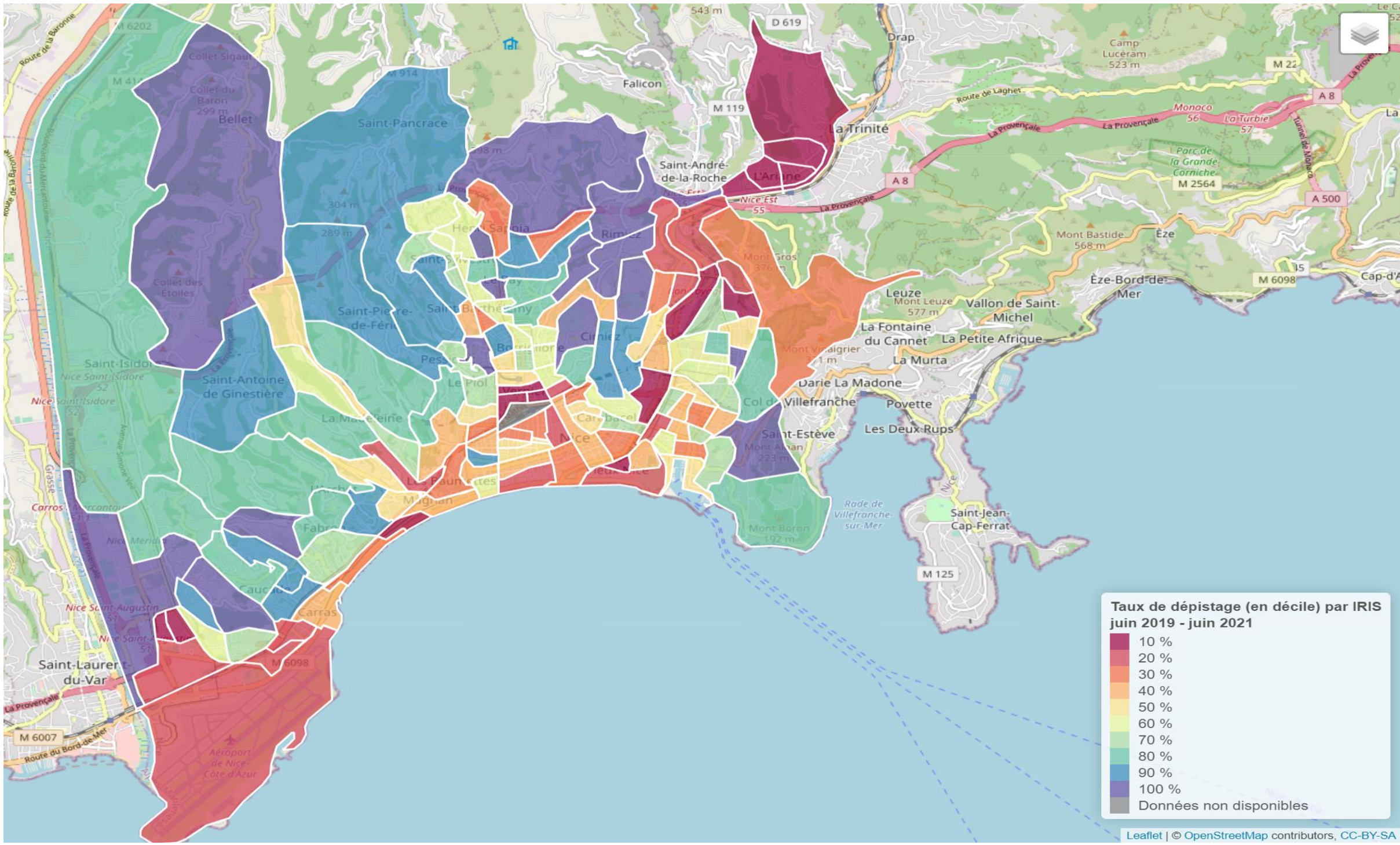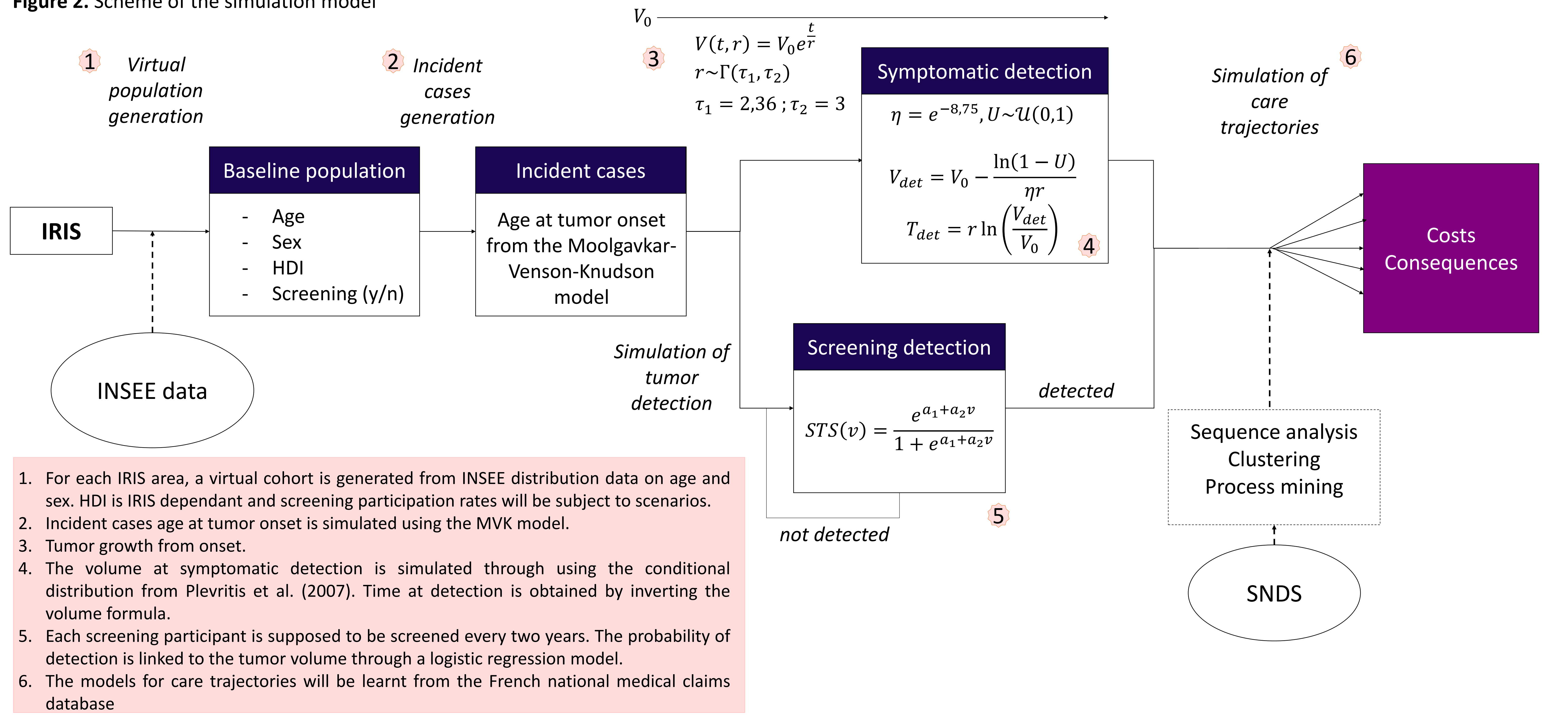

Figure 1. Screening rates per IRIS (June 2019-June2021)

Table 1. Regression table of the SUR model of individual and organised screening rates

Variable	OMS 50-59		OMS 60-75		IMS 50-59		IMS 60-75	
	Coef	P-value	Coef	P-value	Coef	P-value	Coef	P-value
Constant	0,146	0,052	0,188	0,010	0,152	0,060	-0,066	-0,322
Executive	-0,747	0,034	-0,793	0,020	0,489	0,194	0,123	0,692
LHDI	0,168	0,042	0,158	0,047	0,318	<0,01	0,485	<0,01
Public transport	0,277	<0,01	0,252	<0,01	0,045	0,480	0,046	0,389
No car	-0,191	<0,01	-0,195	<0,01	-0,166	<0,01	-0,084	0,025
Single	-0,097	0,084	0,012	0,821	-0,087	0,148	-0,023	0,644

Methods

Figure 2. Scheme of the simulation model

1. For each IRIS area, a virtual cohort is generated from INSEE distribution data on age and sex. HDI is IRIS dependant and screening participation rates will be subject to scenarios.
2. Incident cases age at tumor onset is simulated using the MVK model.
3. Tumor growth from onset.
4. The volume at symptomatic detection is simulated through using the conditional distribution from Plevritis et al. (2007). Time at detection is obtained by inverting the volume formula.
5. Each screening participant is supposed to be screened every two years. The probability of detection is linked to the tumor volume through a logistic regression model.
6. The models for care trajectories will be learnt from the French national medical claims database

Perspectives

- The study reinforces that significant social disparities exist in breast cancer screening rates, with disadvantaged groups screening less frequently.
- Findings are expected to quantify the financial and health impacts of these disparities, showing how lower screening rates among disadvantaged populations lead to higher treatment costs and later-stage diagnoses.
- By modeling targeted interventions in disadvantaged areas, the study anticipates identifying cost-effective strategies that can improve screening rates and outcomes, helping to reduce health inequities.
- Results may guide local healthcare policy, supporting tailored actions that could be scaled to other regions with similar disparities to improve public health equity and optimize resource allocation.