

ESTIMATION OF THE POTENTIAL IMPACT OF THE FRENCH CRC SCREENING PROGRAM BASED ON REAL-WORLD PARTICIPATION RATES

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CONTEXT

Organized screening for Colorectal Cancer (CRC) has been available since 2009 in France. Individuals from 50 to 74 with **medium risk for CRC** (i.e. no familial history (FH), inflammatory bowel disease (IBD) or Lynch syndrome/Familial Adenomatous Polyposis (FAP)) are eligible for screening. Screening is based on **fecal occult blood** testing with an immunological test (iFOBT) at a threshold of 30µg/g, followed by colonoscopy if positive.

OBJECTIVE

TO ESTIMATE THE EPIDEMIOLOGICAL IMPACT OF THE FRENCH CRC SCREENING PROGRAM BASED ON OBSERVED SCREENING RATES

METHODOLOGY

A **microsimulation model** was constructed, calibrated and validated for the French context^A.

- The models simulate the **natural history of CRC** and includes a screening module based on **real world screening processes**. (Figure 1)

The model was used to estimate the impact of the current CRC screening program on:

- CRC incidence
- CRC mortality

The last published participation rate for the national organized screening program was used in the model (29.1%)^B.

This impact was extrapolated to the French population to give estimates of the absolute reduction in disease burden. A sensitivity analysis explores the impact of lower and higher participations.

Simulation of 4,000,000 individuals aged 50-74y at model initiation and representative of the French population.

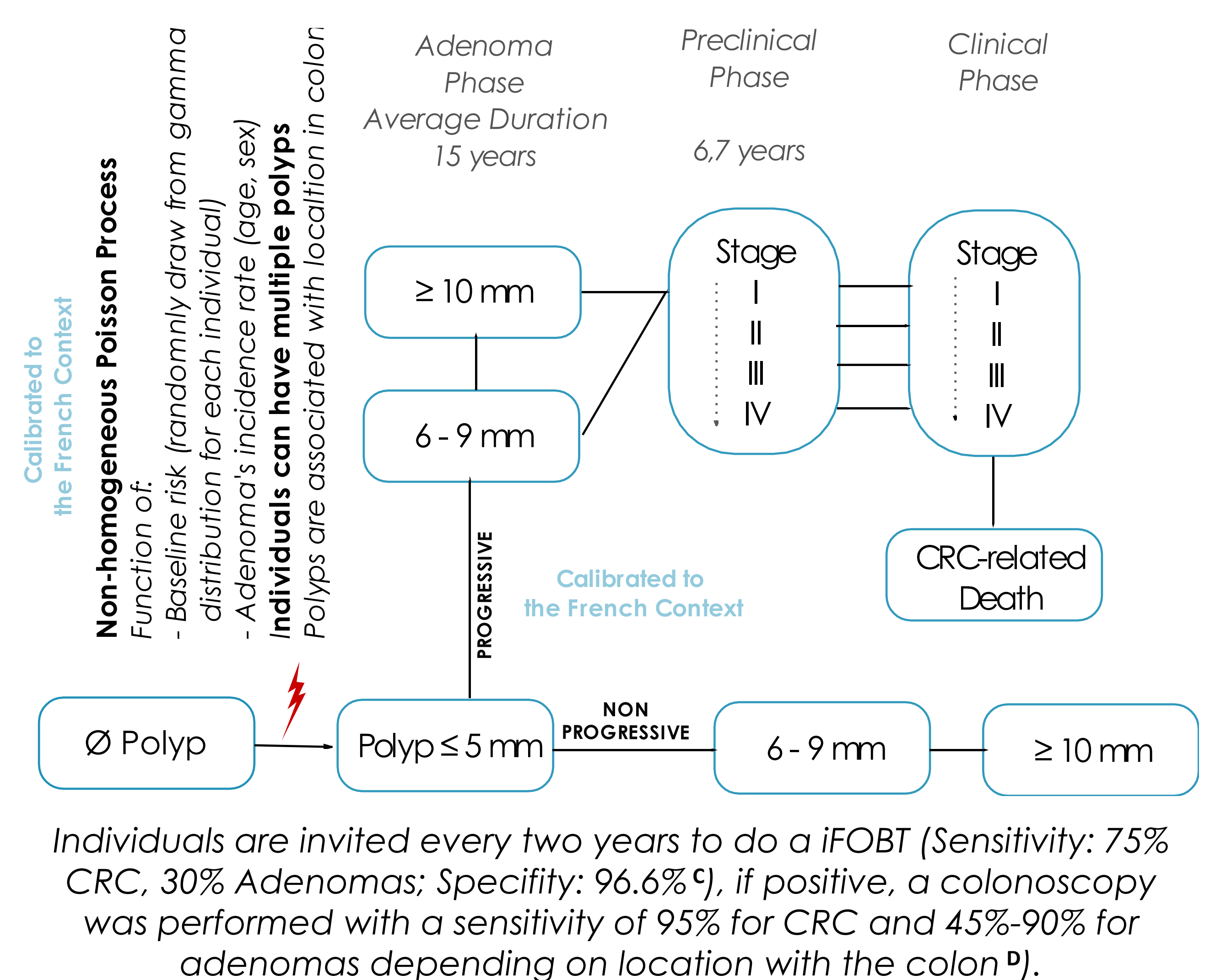


Figure 1. Model Structure

THE RESULTS SUPPORT THE EFFECTIVENESS OF THE CURRENT SCREENING PROGRAM IN FRANCE DESPITE A RELATIVELY LOW ADHERENCE.

- Compared with no screening, with current screening program:
 - CRC incidence reduced by 5% (2,200 cases)**
 - Annual mortality reduced by 14% (2,600 deaths)**
- At 45% and 65% participation rate:
 - Incidence would be further reduced by 3% and 7% (1,300 and 3,500)
 - Mortality by 8% and 22% (1,400 and 4,000).
- Incidence and mortality reduction are linearly related to participation rates with **no participation threshold needed for the screening program to be effective.**

References:

A Calibration was done using the same sources and methods as Lansdorp-Vogelaar et al. (2009) (Lansdorp-Vogelaar I, van Ballegooijen M, Zauber AG, et al. At what costs will screening with CT colonography be competitive? A cost-effectiveness approach. Int J Cancer. 2009; 124: 1161-8.) using additional French epidemiological data from the first screening campaign (Santé publique France. Evaluation du programme de dépistage organisé du cancer colorectal sur la période 2012-2013. 2016).

B Santé Publique France. Taux de participation au programme de dépistage organisé du cancer colorectal 2016-2017. 2018.

C Robertson DJ, Lee JK, Boland CR, et al. Recommendations on Fecal Immunochemical Testing to Screen for Colorectal Neoplasia: A Consensus Statement by the US Multi-Society Task Force on Colorectal Cancer. Gastroenterology. 2017; 152: 1217-37 e3.

D Haute Autorité de Santé. Coloscopie virtuelle meta-analyse des performances diagnostiques indications et conditions de réalisation. Rapport d'évaluation technologique. Saint-Denis (fra), 2010.

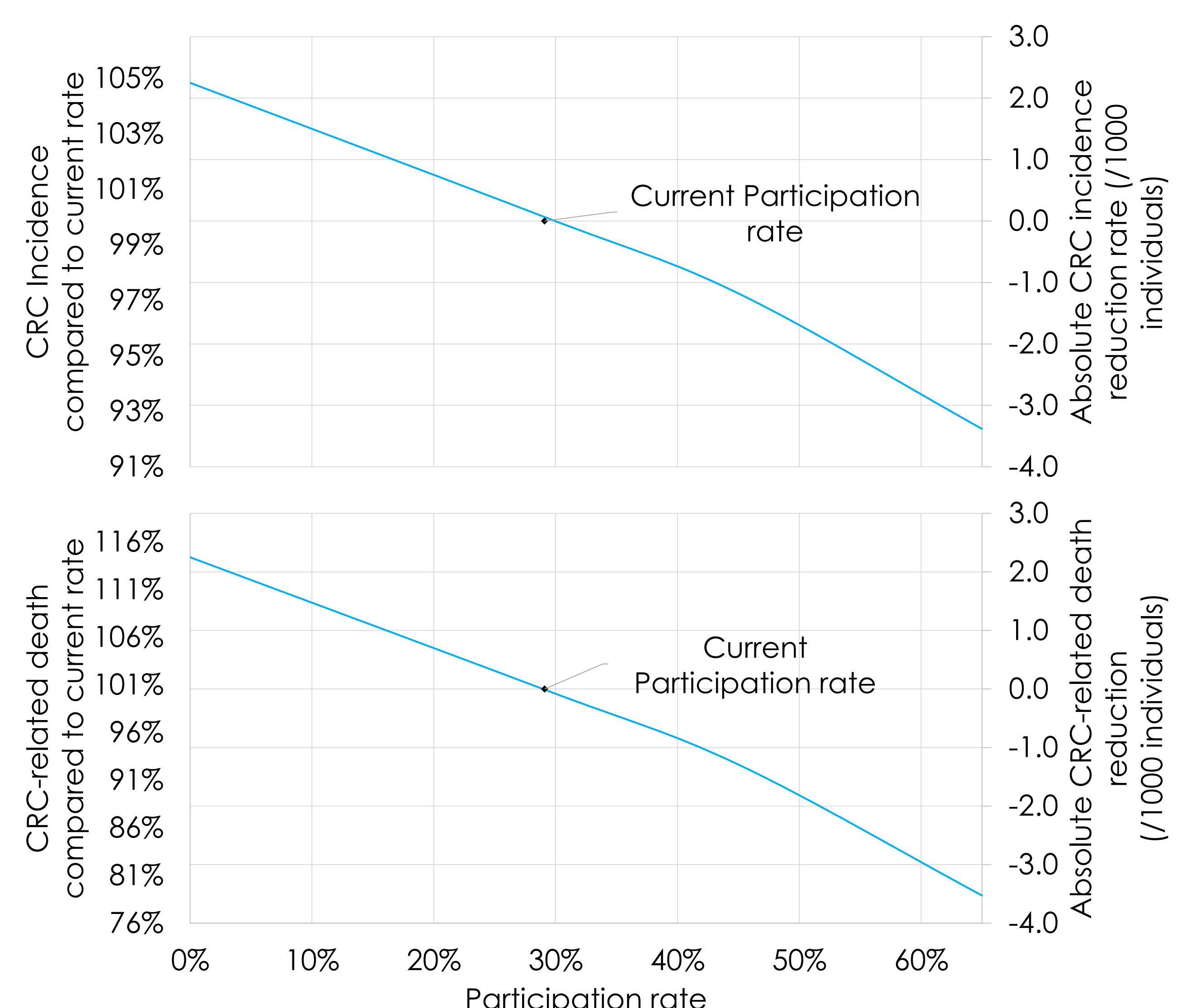


Figure 2. Incidence and mortality reduction by participation rate

Full description of the model is available in Institut National du Cancer. Évaluation médico-économique du dépistage du cancer colorectal - Rapport technique. 2019. Available at <https://www.e-cancer.fr/Expertises-et-publications/Catalogue-des-publications/Evaluation-medico-economique-du-depistage-du-cancer-colorectal-Rapport-technique>