

# Can new strategies promote attendance at colorectal cancer screening programs?

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<b>Registration date</b> 20/02/2023	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
<b>Last Edited</b> 09/02/2026	<b>Condition category</b> Other	<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

In European countries, colorectal cancer (CRC, also known as bowel cancer) represents an important public health problem. Screening by a faecal occult blood test (FOBT, a test for the detection of blood in the faeces which is not visually apparent) has proven to be effective in reducing CRC mortality. Currently, population-based screening programmes using FOBT have been or are heading towards being implemented in many European countries. Faecal immunochemical test (FIT, another test for the detection of blood in the faeces which is not visually apparent) has been adopted by most Italian regions as the default screening test. Flexible sigmoidoscopy (FS, an exam used to evaluate the lower part of the large intestine (colon) using a thin, flexible tube (sigmoidoscope) is inserted into the rectum) screening offered to people 58 years old has shown to reduce CRC. Although, the attendance rate in CRC screening programmes still remains suboptimal in Italy. Numerous international agencies recommend, among the tests able to identify CRC and precancerous lesions, CT Colonography (CTC), or “virtual colonoscopy”, with a five-year interval. Some trials have evaluated CTC as a screening test, with contradictory results. Recently a new approach based on “behavioural economics” (BE) concepts has been proposed with the aim to provide new insights into people’s behaviours and suggest new tools to promote screening uptake. Thus, the idea to design screening invitation letters according to new behavioural concepts seems appealing. The aim of the project is to evaluate the impact on CRC screening attendance of different strategies for inviting people.

### Who can participate?

For this study, 84,600 people of both gender and aged 54-70 years, non-respondents to FIT-based screening, will be randomised into six groups.

### What does the study involve?

A total of 79,600 people will be invited to get a FIT; subjects randomised in arms 1a, 1b and 1c will be invited by mail with three different types of experimental letters drafted according to BE principles, whereas 40,000 subjects will be invited with a standard invitation letter (arm 2). Lastly, 3,000 subjects and 2,000 subjects will be invited to undergo an FS or a CTC examination, respectively (arm 3 and arm 4). Our project will be carried out in the territories of the three Local Health Units of Tuscany. The attendance rate will be compared among the six groups, in order to

assess the efficacy of single strategies.

A qualitative phase will aim to develop the experimental invitation letter models containing messages drafted according to behavioural economics concepts of normative feedback and minority norm. This material will be evaluated through Interviews, in order to collect participants views on behavioural economics messages and to assess the comprehensibility and clarity of the texts. Interviews will be carried out with volunteers of both genders (selected from screening archives) non-respondents to CRC screening.

In this part of the project, the readability of the invitation letters will be also evaluated. In particular, possible reading comprehension difficulties met by subjects will be correlated with their personal information such as age, sex, etc. For this purpose, READ-IT (<http://www.italianlp.it/demo/read-it/>), the first readability assessment tool existing for the Italian language, will be exploited.

This study started from the pilot (involving ISPRO-Florence, CPO-Piedimont, ASL Roma 2-Lazio, Latina-Lazio) which aimed to increase participation in the FIT using strategies proposed by a new approach based on "behavioural economics". The pilot involved a sample composed of 12,600 people randomly selected and allocated to the different arms. 50% of the participants belonged to the control group and received the standard invitation letter. The remaining 50% was divided into 3 equal large treatment groups and they were sent different invitation letters.

What are the possible benefit and risks of participation?

Subjects who usually do not respond to the screening invitation may choose to undertake the test due to the invitation strategy. In this case, the patient will benefit from the prevention efficacy of screening. The screening methodologies implemented in the tests are all validated and suggested at a national level. However, risks related to endoscopic procedures are different from those related to FIT tests.

Where is the study run from?

Institute for cancer research, prevention, and clinical network in Florence, Italy, is the coordinating centre of the project. The other centers involved in the study are CPO Piemonte, ASL Roma 2, ASL Latina, Local Health Unit Toscana Nord Ovest, Local Health Unit Toscana Sud-Est, Local Health Unit Toscana Centro.

When is the study starting and how long is it expected to run for?

January 2017 to December 2024.

Who is funding the study?

The pilot phase was part of a European Project funded by the European Commission [SRSS/S2018/066]. The full trial is funded by the Tuscany Region [DD 975 16/01/2020]

Who is the main contact?

Dr Paola Mantellini, [p.mantellini@ispro.toscana.it](mailto:p.mantellini@ispro.toscana.it)

## Contact information

**Type(s)**

Scientific

**Contact name**

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## Additional identifiers

### Clinical Trials Information System (CTIS)

Nil known

### Protocol serial number

16875

## Study information

### Scientific Title

New strategies for promoting attendance at colorectal cancer screening programs

### Acronym

BEST CC

### Study objectives

Changing colorectal cancer screening offers should increase participation in previous non-responders.

### Ethics approval required

Old ethics approval format

### Ethics approval(s)

1. Approved 19/01/2021, Comitato etico regionale per la sperimentazione clinica della Regione Toscana - sezione area vasta centro (Nuovo Ingresso Careggi - Largo Brambilla 3, Firenze, Italy; +39055794111; segrcesf@unifi.it), ref: 16875\_spe
2. Pilot study approval 11/07/2017, Comitato etico regionale per la sperimentazione clinica della Regione Toscana - sezione area vasta centro (Nuovo Ingresso Careggi - Largo Brambilla 3, Firenze, Italy; +39055794111; segrcesf@unifi.it), ref: CEAVC Em. 2019-380 – Studio OSS\_10546

### Study design

Interventional randomized controlled trial

### Primary study design

Interventional

### Study type(s)

Screening

## Health condition(s) or problem(s) studied

Attendance to colorectal screening programmes in previous non-responders

## Interventions

In the screening programs participating in this study, men and women aged 50-69/70 years are invited by mail to get a FIT kit at pharmacies or at Local Health Units. The screening test is an immunochemical latex agglutination test with a cut-off set at 20 µg haemoglobin/gr faeces.

The study is composed of two phases:

1. The pilot (limited to the behavioral economics invitation) conducted in Turin, Florence, Rome, and Latina.

The sample was composed of 12,600 people randomly selected and allocated to the different arms. 50% of the participants belonged to the control group and received the standard invitation letter. The remaining 50% was divided into 3 equal large treatment groups and they were sent different invitation letters.

2. The full trial will be conducted in three Local Health Units of Tuscany.

The sample is composed of 84,600 randomized subjects aged 54-70 years previously invited to CRC screening for at least two consecutive rounds and who never did a FIT. The sample will be randomised into four groups according to the four following strategies:

Arm 1: screening by a fecal immunochemical test (FIT) with three different types of invitation letters (arms 1a/1b/1c) drafted according to behavioral economics principles (39,600 subjects aged 54-70 years)

Arm 2: screening by FIT with a standard invitation letter (40,000 subjects 54-70 years)

Arm 3: screening by flexible sigmoidoscopy (FS) (3,000 subjects aged 58-60 years)

Arm 4: screening by virtual colonoscopy (CTC) (2,000 subjects aged 58-60 years)

Subjects enrolled in arm 3 or arm 4 will be asked to sign a consent form

Randomization performed using a specific procedure designed within the STATA system.

## Intervention Type

Behavioural

## Primary outcome(s)

Attendance rate will be measured as the proportion of people who will return a stool sample within 6 months of the mailing of the reminder invitation letter. In arms 3 and 4 attendance in screening will be measured as the proportion of people who will undergo screening tests within 6 months of the mailing of the reminder invitation letter.

## Key secondary outcome(s)

Readability of the invitation letters evaluated using READ-IT (<http://www.italianlp.it/demo/read-it/>) during the study

## Completion date

31/12/2024

## Eligibility

### Key inclusion criteria

Subjects of both genders aged 54-70 years living in the areas of the screening programs participating in the study, who have not attended CRC screening for at least two consecutive rounds.

**Participant type(s)**

Other

**Healthy volunteers allowed**

No

**Age group**

Mixed

**Lower age limit**

54 years

**Upper age limit**

70 years

**Sex**

All

**Total final enrolment**

0

**Key exclusion criteria**

Never had a FIT test within the screening program.

**Date of first enrolment**

01/07/2020

**Date of final enrolment**

30/06/2024

## **Locations**

**Countries of recruitment**

Italy

**Study participating centre**

**Istituto per lo Studio la Prevenzione e la Rete Oncologica**

Via Cosimo il Vecchio 2, 50139 Firenze

Florence

Italy

50139

**Study participating centre**

**Il Centro di Riferimento per l'Epidemiologia e la Prevenzione Oncologica in Piemonte (CPO Piemonte)**

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Italy

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**Study participating centre**

**ASL Roma 2**

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Rome

Italy

00159

**Study participating centre**

**ASL Latina**

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Italy

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**Study participating centre**

**Local Health Unit Toscana Nord Ovest**

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Italy

56121

**Study participating centre**

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**Study participating centre**

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56124

## Sponsor information

**Organisation**  
Istituto per lo Studio e la Prevenzione Oncologica

**ROR**  
<https://ror.org/007wes890>

## Funder(s)

**Funder type**  
Government

**Funder Name**  
Regione Toscana

**Alternative Name(s)**  
Region of Tuscany, Tuscany Region

**Funding Body Type**  
Government organisation

**Funding Body Subtype**  
Local government

**Location**  
Italy

**Funder Name**

European Commission

### Alternative Name(s)

European Union, Comisi3n Europea, Europaische Kommission, EU-Kommissionen, Euroopa Komisjoni, EC, EU

### Funding Body Type

Government organisation

### Funding Body Subtype

National government

### Location

## Results and Publications

### Individual participant data (IPD) sharing plan

#### IPD sharing plan summary

Not expected to be made available

#### Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>	Behavioral economics messages to increase non-responders' participation	13/07/2023	17/07/2023	Yes	No
<a href="#">Results article</a>	Impact on screening participation	27/01/2026	09/02/2026	Yes	No