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INCREASING PARTICIPATION RATE IN POPULATION-BASED CANCER SCREENING PROGRAMMES THROUGH IMPROVEMENT OF INVITATION LETTERS: PILOT STUDY IN THE CZECH REPUBLIC



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NSC, Institute of Health Information and Statistics of the Czech Republic, Institute of Biostatistics and Analyses

General information

- Part of the Institute of Health Information and Statistics of the Czech Republic
- NSC closely cooperates with the Ministry of Health, universities, professional societies, health insurance companies, healthcare providers, etc.

Key activities

- Knowledge translation: bridging the gap between evidence and practice, life-cycle of screening programmes
- Establish data warehouse for implementation of screening programmes
- Coordination of screening programme committees
- Methodological and personnel background to support early detection of the disease
- Implementation research pilot projects
- Support of newly developed screening programs (early detection of lung cancer, SMA/SCID newborn screening)

PROJECT TO INCREASE THE EFFECTIVENESS OF PERSONAL INVITATIONS

- **Objectives of the project:**

- Design of innovative invitation letters for cancer screening programmes based on the application of behavioural insights and survey research (qualitative and quantitative research within the project)
- Controlled determination of the benefit of an upgraded version of the letter when reaching out via a personal invitation (by participation rate)
- Increasing screening coverage and the impact of the programme on the population burden of cancer

PROJECT TO INCREASE THE EFFECTIVENESS OF PERSONAL INVITATIONS

- **Phases of the project:**

1. Research identifying key motivators and barriers of different target groups in relation to preventive examinations or specifically screening – a combination of qualitative research techniques
2. Creation of different variants of letters, their test in "laboratory conditions" and subsequent evaluation
3. Creation of the final set of letters and their test as a "natural field experiment" including data collection in cooperation with the health insurance company
4. Evaluation of the results, especially the comparison of the effectiveness of the innovative letters, and proposal of adjustments to the ongoing invitation programmes

The project partner was the Czech Industrial Health Insurance Company (CIHIC), which sent out an updated version of the personal invitations for screening in 2020. The project is based on data collected from health insurance companies based on the methodology set up within the project of personal invitation to screening prepared by the Ministry of Health of the Czech Republic.

QUALITATIVE RESEARCH AND PRE-TEST

- **Qualitative research (Identification of motivators and barriers to participation in screening programs and baseline perceptions of existing mailing letters):**
 - Focus Group Discussions (FGD) – group discussions with three groups totalling 29 people
 - In-Depth Interviews (IDI) - individual interviews with a total of 24 people
 - Eye-Tracking Camera (ETC) - monitoring of attentional reading in different passages of personal invitations with a total of 24 persons
- **Pre-Test of personal invitation letter concepts :**
 - Focus Group Discussions (FGD) - group discussions with two groups totalling 10 people
 - F2F – submission of draft letters and their evaluation by 318 persons

ET ANALYSIS - VISIBILITY

7.15.4

Vážený pane,

dovoluji si Vás tímto cestou informovat, že se naše zdravotní pojišťovna VZP ČR zapojila do projektu realizovaného z podnětu Ministerstva zdravotnictví ČR.

Systém podpory prevence vybraných nádorových onemocnění v ČR – screeningové programy

Cílem projektu je předcházet výskytu onemocnění a včas zachytit zhoubné nádory či chorobné změny, ze kterých se nádory mohou vyvinout.

Vzhledem k tomu, že v poslední době pravděpodobně neabsolvovala preventivní vyšetření:

- pokud jste žena nad věk 30 let, ať už jste nebo nebyla těhotná
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Ještě jste ještě byla někdy v minulosti léčena pro zhoubný nádor, na který je tato prevence cílena, považujte prosím pozvání na toto vyšetření za bezpředmětné. Stejně tak, pokud jste v mezidobí již vyšetření již absolvovala.

Děkujeme Vám, že věnujete pozornost péči o své zdraví.
S pozdravem

ministr zdravotnictví ředitel VZP ČR

Šance pro Váš život.
Projekt Systém podpory prevence vybraných nádorových onemocnění v ČR – screeningové programy je spolufinancován Evropskou unií z Evropského fondu pro regionální rozvoj.

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Z přehledu Vám čerpané zdravotní péče vyplývá, že jste v poslední době pravděpodobně neabsolvoval toto pro Vaše zdraví důležité preventivní vyšetření:

- vyšetření zaměřené na včasné zachytí zhoubného nádoru tlustého střeva

V České republice každoročně onemocní zhoubným nádorem tlustého střeva přibližně 8 000 osob, více než 4 000 mužů a žen této nemoci podlehne. Nemoc se velmi často podaří zachytit až v nejzdějším stádiu, kdy jsou vyhlídky na vyléčení výrazně nižší, než při včasnému zachytu nemoci. Tomu lze předjet právě absolvováním preventivní prohlídky.

Chcete se jíchat vyšetřit?

Pokud se rozhodnete absolvovat vyšetření, můžete se objednat u svého praktického lékaře na pravidelnou preventivní prohlídku. K lékaři (případně i k dalšímu vyšetření) přinesete tento zvací dopis.

Prohlídka je pro Vás hrazena ze zdravotního pojištění a je tedy pro Vás bezplatná!

Pokud nejste registrován u praktického lékaře, kontaktujte naši zákaznickou linku 952 222 222, nebo napište na info@vzp.cz.

Ještě jste ještě byl někdy v minulosti léčen pro zhoubný nádor, na který je tato prevence cílena, považujte prosím pozvání na toto vyšetření za bezpředmětné. Stejně tak, pokud jste v mezidobí preventivní prohlídku již absolvoval.

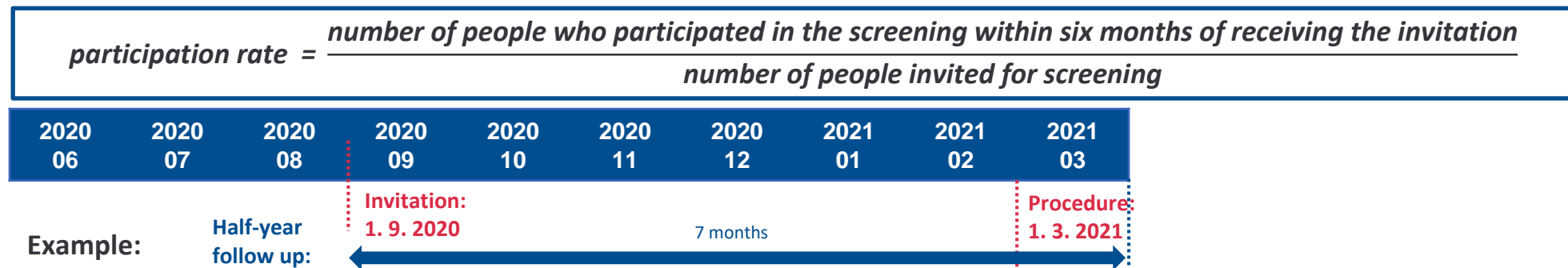
Děkujeme Vám, že věnujete pozornost péči o své zdraví.
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PROJECT ANALYSIS METHODOLOGY

- **Aim of the analysis:** determination of the potential benefits of introducing an innovative form of personal invitation to increase the rate of participation in screening.
- **Data source:** data sent by individual health insurance companies within the framework of the personal invitation programme, which has been operating in the Czech Republic since 2014. All health insurance companies send personal invitations to their insureds from the target groups to participate in breast cancer screening, cervical cancer screening and colorectal cancer screening in the form of an invitation letter.
- **Indicator:** **participation rate of invitees in screening**



PROJECT ANALYSIS METHODOLOGY

The aim of the analysis was to compare the participation rate of people in screening **during the pilot project** Increasing the effectiveness of personal invitations (June-September 2020; innovative form of personal invitation) compared to the period **before this project** (March 2018; original form of personal invitation).

In 2020, the results may have been affected by the ongoing COVID-19 epidemic, so a '**net change in participation rate**' was calculated during the project compared to the pre-project period, which reduces this bias by taking into account the evolution of the indicator for other HICs that did not use the upgraded form.

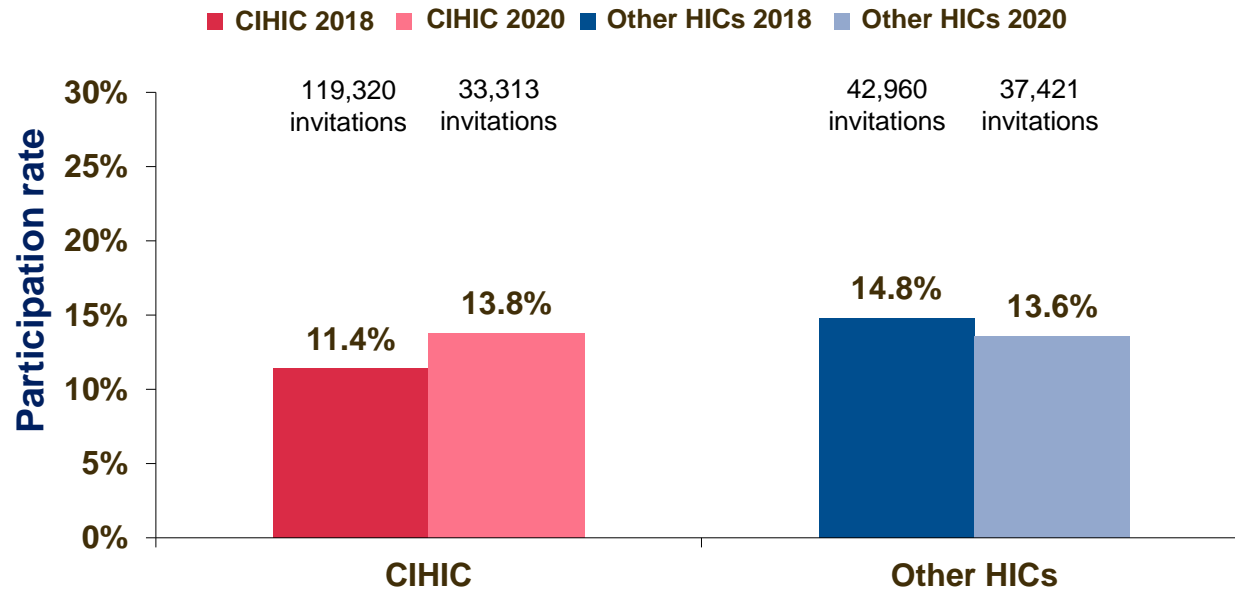
Change in participation rate of CIHIC = Participation rate during the project (CIHIC) – Pre-project participation rate (CIHIC)

Change in participation rate of other HICs = Participation rate during the project (other HICs) – Pre-project participation rate (other HICs)

Net change in participation rate = Change in the participation rate of the CIHIC – Change in participation rate of other HICs

A binomial regression model adjusted for order of invitation, age, letter variant and, for colorectal screening, gender, was used to reduce the undesirable effect of some parameters on the resulting net change in participation rate. By using this model, we can reduce the influence of these variables on the resulting value of the net change in participation rate, thus reducing bias.

COLORECTAL SCREENING PARTICIPATION RATES IN 2018 AND 2020



Net change in participation rate without adjustment:

Net change in participation rate during the project compared to the pre-project period: **+3,6 % (95% CI: 2,9; 4,2)***

- CIHIC: **+2,4 % (95% CI: 2,0; 2,8 %)***
- Other HICs: **-1,2 % (95% CI: -1,7; -0,7 %)***

Net change in participation rate adjusted for invitation order, age, gender and letter variant:

Net change in participation rate during the project compared to the pre-project period: **+2,1 % (95% CI: 1,5; 2,7)***

Monitoring period:

Before the project:

Screening participation rate within 7 months of invitation in **March 2018**

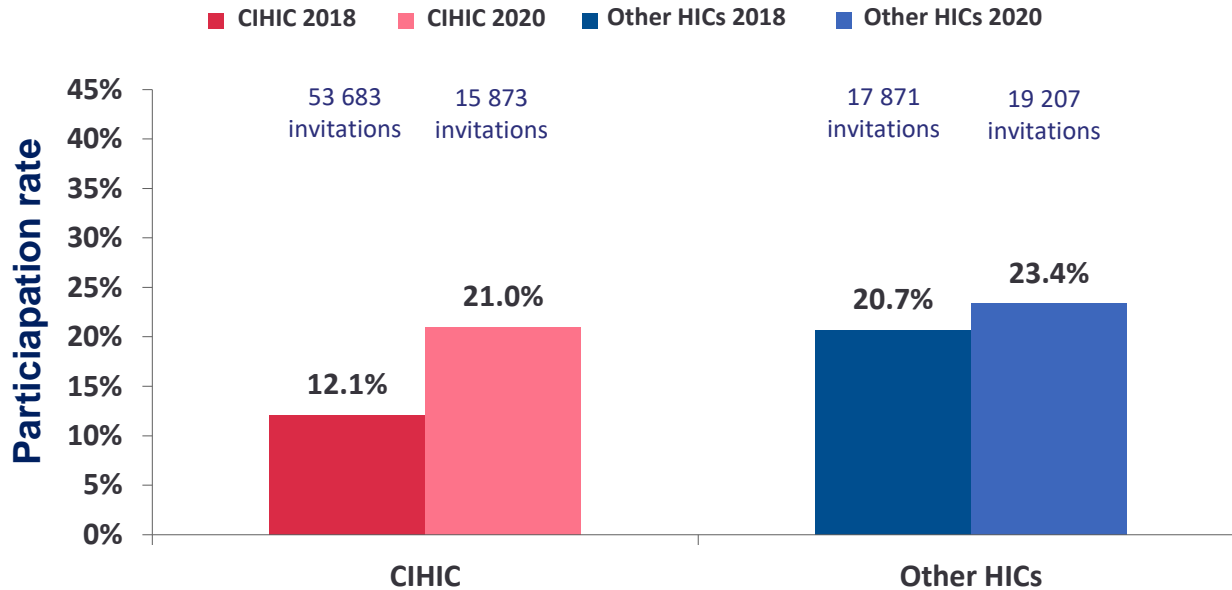
During the project:

Screening participation rate within 7 months of invitation in **June-September 2020**

Note: Estimated net change in participation rate during the project compared to the pre-project period calculated using a binomial regression model.

* The net change in participation rate during the project compared to the pre-project period is statistically significant.

MAMMOGRAPHY SCREENING PARTICIPATION RATES IN 2018 AND 2020



Net change in participation rate without adjustment:

Net change in participation rate during the project compared to the pre-project period: **+6,3 % (95% CI: 5,2; 7,4)***

- CIHIC: **+8,9 % (95% CI: 8,2; 9,6)***
- Other HICs: **+2,6 % (95% CI: 1,8; 3,5)***

Net change in participation rate adjusted for invitation order, age and letter variant:

Net change in participation rate during the project compared to the pre-project period: **+1,6 % (95% CI: 0,7; 2,4)***

Monitoring period:

Before the project:

Screening participation rate within 7 months of invitation in **March 2018**

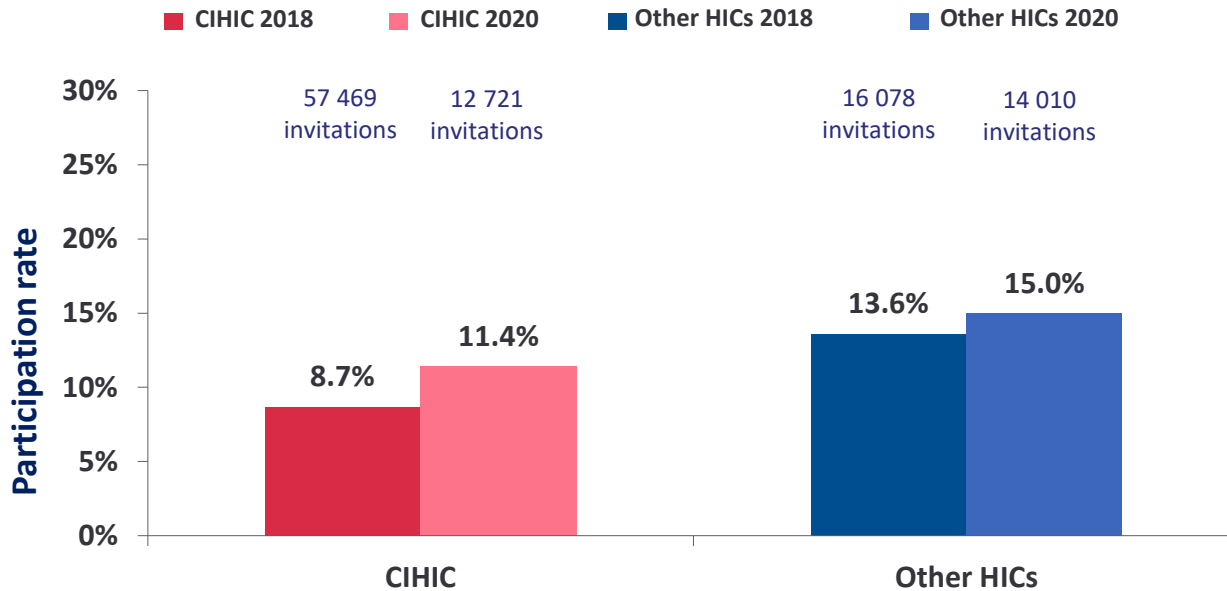
During the project:

Screening participation rate within 7 months of invitation in **June-September 2020**

Note: Estimated net change in participation rate during the project compared to the pre-project period calculated using a binomial regression model.

* The net change in participation rate during the project compared to the pre-project period is statistically significant.

CERVICAL SCREENING PARTICIPATION RATES IN 2018 AND 2020



Net change in participation rate without adjustment:

Net change in participation rate during the project compared to the pre-project period: +1,3 % (95% CI: 0,3; 2,3)*

- CIHIC: +2,7 % (95% CI: 2,1; 3,3)*
- Other HICs: +1,4 % (95% CI: 0,6; 2,2)*

Net change in participation rate adjusted for invitation order, age and letter variant:

Net change in participation rate during the project compared to the pre-project period: +0,4 % (95% CI: -0,5; 1,2)

Monitoring period:

Before the project:

Screening participation rate within 7 months of invitation in **March 2018**

During the project:

Screening participation rate within 7 months of invitation in **June-September 2020**

Note: Estimated net change in participation rate during the project compared to the pre-project period calculated using a binomial regression model.

* The net change in participation rate during the project compared to the pre-project period is statistically significant.

SUMMARY AND CONCLUSIONS

- **Approximately 70,000 people were reached with the innovative letter**
- Statistical comparisons with the control group (after taking into account the effects of invitation order, age, gender, letter variant and the COVID-19 pandemic) showed a **net change in participation rates of +2.1% for colorectal screening, +1.6% for mammography screening and +0.4% for cervical screening.**
- **Targeted invitations to citizens through innovative personal invitations had small but potentially important positive impact on increasing participation in colorectal and breast cancer screening programmes, smaller effect was observed for cervical screening programme.**