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The effects of monetary incentives on COVID-19 vaccination uptake

Submission date	Recruitment status	[X] Prospectively registered
26/10/2021	No longer recruiting	[_] Protocol
Registration date	**Overall study status**	[_] Statistical analysis plan
28/10/2021	Completed	[X] Results
Last Edited	**Condition category**	[X] Individual participant data
10/02/2025	Infections and Infestations	

Plain English summary of protocol

Background and study aims
Vaccination is one of the most effective ways to control the spread of COVID-19. However, many high-income countries struggle to reach levels of vaccination that approach herd immunity. According to the European Centre for Disease Control and Prevention, only about 64% of the European population is fully vaccinated. To increase vaccination rates, it is critically important to encourage those who remain hesitant and mobilize those who are willing to get vaccinated but haven't followed through. To do so, numerous local and state governments have started experimenting with various forms of monetary incentives, ranging from small financial payouts to large-sum lotteries. The effectiveness of these initiatives is not yet clear. The aim of this study is therefore to test if a monetary incentive motivates unvaccinated people to get a COVID-19 vaccination. The researchers also want to know if a monetary incentive motivates people to convince other people to get vaccinated.

Who can participate?
The study will take place in the city of Ravensburg, Germany. All residents of the city aged 18 years or older will receive a letter from the city's mayor inviting them to get vaccinated at one of seven public vaccination clinic events.

What does the study involve?
All addresses within the city will be randomly divided into two groups (Group A and B). In Group A, one resident per address will be randomly selected. These people form the treatment group. All other residents (the remaining residents in Group A and all residents in Group B) will form the control group. Members of the treatment group will receive a letter from the city's mayor inviting them to get vaccinated at one of seven public vaccination clinic events. The letter offers a voucher of 20 Euros if the recipient gets vaccinated and another 20 Euros voucher if more than 900 people get vaccinated. The second voucher can also be redeemed by recipients who already have been vaccinated. They need to convince somebody else to get vaccinated (as verified by any other resident handing in the treatment recipient's letter during vaccination). The residents in the control group will receive the same letter but without any monetary incentives. At the end of the study, the researchers will compare the share of people who got vaccinated in the treatment group with those in the control group. They will also compare the share of people in Group A who did not receive a monetary incentive and got vaccinated with the share of people

in Group B who got vaccinated. Additionally, the researchers will compare the share of people in the treatment and control group who visited the website mentioned in the letter.

What are the possible benefits and risks of participating?
If residents decide to get vaccinated against COVID-19, they benefit from the extensive protection offered against the dangers of a COVID-19 infection (especially, reducing the risk of hospitalization and death). Residents in the treatment group additionally benefit from the monetary incentive. The risks are the limited risks associated with the COVID-19 vaccination.

Where is the study run from?
Zeppelin University (Germany)

When is the study starting and how long is it expected to run for?
October 2021 to December 2021

Who is funding the study?
The involved researchers are paid by their universities (Zeppelin University (Germany), Georgetown University (USA), and University of Hamburg (Germany). The monetary incentives are financed by the city of Ravensburg (Germany).

Who is the main contact?
Dr Florian Keppeler
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Contact information

Type(s)
Scientific

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Additional identifiers

Clinical Trials Information System (CTIS)
Nil known

ClinicalTrials.gov (NCT)
Nil known

Protocol serial number
MoInVax-RV-2021

Study information

Scientific Title
Cluster-level spillover randomized controlled trial to assess the impact of monetary incentives on COVID-19 vaccination uptake among German adults

Acronym
MoInVax

Study objectives
H1-1 (direct or "total" effect #1): Offering a set of monetary incentives increases the number of unique website visits (on a municipal webpage with information on COVID-19 vaccination) among treated subjects in treatment clusters compared to equivalent subjects in control clusters (i.e., in each control cluster, the person who would have received the treatment letter had they been assigned to a treatment cluster).

H1-2 (direct or "total" effect #2): Offering a set of monetary incentives increases COVID-19 vaccinations (tracked at seven city vaccinations events) among treated subjects in treatment clusters compared to equivalent subjects in control clusters (i.e., in each control cluster, the person who would have received the treatment letter had they been assigned to a treatment cluster).

H2 (spillover effect): Offering a set of monetary incentives increases COVID-19 vaccinations among untreated individuals in treatment clusters compared to untreated subjects in control clusters (minus the individual who would have received a treatment letter in the control cluster if they were assigned to a treatment cluster).

H3-1 (overall effect #1): Offering a set of monetary incentives increases unique website visits among treated and untreated individuals in treatment clusters compared to untreated subjects in control clusters.

H3-2 (overall effect #2): Offering a set of monetary incentives increases COVID-19 vaccinations among treated and untreated individuals in treatment clusters compared to untreated subjects in control clusters.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 29/10/2021, Ethics Commission of the Zeppelin University (Dr. Ute Lucarelli, Zeppelin University, Am Seemooser Horn 20, 88045 Friedrichshafen, Germany; +49 (0)7541 6009 1114; ethikkommission@zu.de)

Study design

Single-center interventional two-stage (individual-and-cluster level) randomized trial

Primary study design
Interventional

Study type(s)
Prevention

Health condition(s) or problem(s) studied
COVID-19 (SARS-CoV-2 infection)

Interventions
Current intervention as of 04/11/2021:
The study will be conducted in the city of Ravensburg, Germany. All residents of the city (age 18 years and older) will be subject to the trial. Treatment assignment follows a two-stage randomization process. In the first stage, all housing addresses within the city will be randomized into two groups (i.e., intervention group and control group). In the second stage, one resident of each address in both groups will be randomly selected (a "cluster representative"). The cluster representatives in the intervention group only will be sent the intervention letter. All remaining residents will be sent the control letter.

The treatment group will receive a letter from the mayor of the city inviting them to get a COVID-19 vaccination at one of seven public vaccination events. The letter offers two financial incentives. If the recipient is not already vaccinated and gets vaccinated at the vaccination events, they will receive 20 Euros (in the form of a shopping voucher). Additionally, another 20 Euro incentive is offered if more than 900 city residents get vaccinated at one of the seven vaccination events. If the recipient is already vaccinated, they can still get the second incentive if they give the treatment letter to someone else and that individual brings it to one of the seven vaccination events, gets vaccinated, and more than 900 city residents get vaccinated during the one of the seven vaccination events.

The control group will get the same letter as the treatment group but without the offer of monetary incentives.

For the analysis, all residents living at the same address will be treated as members of the same social network. The researchers will test an alternative operationalization of a social network by considering all residents with the same last name who reside are part of the same address cluster as members of the same social network.

The entire known population of the city (based on the official registry of residents) will be randomized. The randomization will be conducted in R (version 4.1.1) using the function "sample" with the seed set to 2021. The cluster-level randomization will be blocked by cluster size.

Previous intervention:
The study will be conducted in the city of Ravensburg, Germany. All residents of the city (age 18 years and older) will be subject to the trial. Treatment assignment follows a two-stage randomization process. In the first stage, all housing addresses within the city will be randomized into two groups (i.e., intervention group and control group). In the second stage,

one resident of each address in both groups will be randomly selected (a "cluster representative"). The cluster representatives in the intervention group only will be sent the intervention letter. All remaining residents will be sent the control letter.

The treatment group will receive a letter from the mayor of the city inviting them to get a COVID-19 vaccination at one of seven public vaccination events. The letter offers two financial incentives. If the recipient is not already vaccinated and gets vaccinated at the vaccination events, they will receive 20 Euros (in the form of a shopping voucher). Additionally, another 20 Euro incentive is offered if more than 750 city residents get vaccinated at one of the seven vaccination events. If the recipient is already vaccinated, they can still get the second incentive if they give the treatment letter to someone else and that individual brings it to one of the seven vaccination events, gets vaccinated, and more than 750 city residents get vaccinated during the one of the seven vaccination events.

The control group will get the same letter as the treatment group but without the offer of monetary incentives.

For the analysis, all residents living at the same address will be treated as members of the same social network. The researchers will test an alternative operationalization of a social network by considering all residents with the same last name who reside are part of the same address cluster as members of the same social network.

The entire known population of the city (based on the official registry of residents) will be randomized. The randomization will be conducted in R (version 4.1.1) using the function "sample" with the seed set to 2021. The cluster-level randomization will be blocked by cluster size.

Intervention Type
Behavioural

Primary outcome(s)
1. Information uptake measured by whether a participant visits the informational website mentioned in the letter. The website is prominently displayed in both treatment and control letters. Each URL is unique to the individual recipient. Measured using server logs for the provided unique links from 05/11/2021 to 13/12/2021.
2. Vaccination uptake measured via an on-site record of administered vaccinations during the seven public vaccination events at 13/11/2021, 19/11/2021, 20/11/2021, 26/11/2021, 27/11 /2021, 10/12/2021, and 11/12/2021

Key secondary outcome(s))
There are no secondary outcome measures

Completion date
13/12/2021

Eligibility

Key inclusion criteria
1. Residents of the city of Ravensburg
2. Aged 18 years or older

Participant type(s)
All

Healthy volunteers allowed
No

Age group
Mixed

Lower age limit
18 years

Sex
All

Total final enrolment
796

Key exclusion criteria
1. The inmates of the local prison (the city's largest address cluster)
2. Residents of the cities' second-largest address cluster (with 75 residents)

Date of first enrolment
10/11/2021

Date of final enrolment
11/12/2021

Locations

Countries of recruitment
Germany

Study participating centre
City of Ravensburg
Marienplatz 26
Ravensburg
Germany
88212

Sponsor information

Organisation
Zeppelin University

ROR
https://ror.org/05tbp1g38

Funder(s)

Funder type
University/education

Funder Name
Zeppelin Universität

Funder Name
Universität Hamburg

Alternative Name(s)
University of Hamburg, UH

Funding Body Type
Government organisation

Funding Body Subtype
Local government

Location
Germany

Funder Name
Georgetown University

Alternative Name(s)
Georgetown, Georgetown College, Collegii Georgiopolitam, Collegium Georgiopolitanum, GU

Funding Body Type
Private sector organisation

Funding Body Subtype
Universities (academic only)

Location
United States of America

Funder Name
Stadt Ravensburg

Results and Publications

Individual participant data (IPD) sharing plan

Current IPD sharing statement:
The datasets will be stored at Zenodo (https://zenodo.org/) and made available after publication of the findings in a scientific journal. There will be no restrictions for accessing the data, and it will be available as long as Zenodo provides this service. It will include anonymized raw data for all treated patients in the treatment and control arm. This includes information about the treatment arm, randomization block, address cluster, type of vaccination, vaccination event, information uptake, and demographic data as long as it cannot be used to de-anonymize participants. We will use k-anonymity to avoid de-anonymization. Anonymized data can be shared without patients' consent.

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Previous IPD sharing statement:
The data-sharing plans for the current study are unknown and will be made available at a later date

IPD sharing plan summary

Stored in publicly available repository

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		22/01/2024	29/01/2024	Yes	No
Results article		03/02/2025	10/02/2025	Yes	No
Dataset	Datasets can be downloaded from OSF		22/12/2023	No	No
Preprint results		16/11/2023	22/12/2023	No	No