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Can text message reminders improve participation in cervical cancer screening?

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03/12/2019

Recruitment status
No longer recruiting

Registration date
06/12/2019

Overall study status
Completed

Last Edited
05/12/2019

Condition category
Cancer

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[ ] Record updated in last year

Plain English summary of protocol

Background and study aims:
Research from around the world has shown that Pap smear screening (smear testing) for cervical cancer has dramatically reduced the numbers of women diagnosed with and dying from cervical cancer. Pap smear screening has been available in Taiwan since 1995 and is supported by National Health Insurance. Women who aged 30-69 in Taiwan are eligible for cervical cancer screening every 3 years. However, the proportion of women who attend the test has not been more than 7 out of 10 in over 20 years since the test has become available. Therefore, there is still room for improvement. Most women in Taiwan have a mobile phone and text messaging is a popular and effective way of communicating. There is little research on using text messages for screening invitations and whether this is efficient or not, especially for people in certain cultures or ethnic groups.
This study aims to investigate whether sending two text reminders increases the proportion of women who attend their cervical cancer screening appointment.

Who can participate?
Women aged 30 years or over who have not had a smear test for at least 3 years and have their mobile phone number in the cervical cancer screening management system

What does the study involve?
The women were divided into three groups based on how likely they are thought to be to attend the smear test appointment depending on factors like age and education status. Then each group was randomly allocated into two halves, with one half receiving the reminder text messages during the study and the other half receiving after the study had finished.

What are the possible benefits and risks of participating?
The text message reminder intervention is expected to increase participation in cervical cancer screening. All women received the text messages at some point, either within the study or afterwards, so all participants could benefit from additional encouragement to attend the smear test, which might mean if they have the early signs of cervical cancer, that the treatment could be started earlier and is more likely to be effective.There was no risk to participants in this project.

Where is the study run from?
Chang Gung University (Taiwan)

When is the study starting and how long is it expected to run for?
December 2015 to July 2019

Who is funding the study?
The Ministry of Science and Technology (Taiwan)

Who is the main contact?
Dr Sherry Yueh-Hsia Chiu, sherrychiu@mail.cgu.edu.tw

Contact information

Type(s)
Scientific

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Additional identifiers

Study information

Scientific Title
Evaluating the effect of mobile text messaging reminder on participation of cervical cancer screening using a stratified randomized controlled trial

Study objectives
Mobile text messaging reminder can significantly increase the participating rate of cervical cancer screening

Ethics approval required
Old ethics approval format

Ethics approval(s)

Approved 06/02/2016, Chang Gung Medical Foundation Institutional Review Board (No.123, Dinghu Rd, Guishan District, Taoyuan City 333, Taiwan; +886-3-319-6200 ext 3703; irb1@cgmh.org.tw), ref: 104-9946B, 201509946B0D001

Primary study design
Interventional

Study design
Stratified randomized controlled trial

Study type(s)
Screening

Health condition(s) or problem(s) studied
Cervical cancer screening

Interventions
The eligible population for cervical cancer screening on March 2019 was managed by Division of Health Promotion, Health Bureau of Keelung City and analyzed by one specific staff to make sure all the list based on the nationwide cervical cancer screening criteria. First the individual tendency toward participation for cervical cancer screening was calculated by the following coefficients, which were estimated from previous project of Changhua community data. The multiple logistic regression was conducted to estimate the factors that affecting participation on cervical cancer screening, including age, years of education, marital status, and time interval since last date of screening participation.

Secondly, the individual tendency of cervical cancer screening participation was generated based those coefficients. Using the tertial approach (33.3% and 66.6%), this study population was classified into three groups: low-, medium-, and high-level of tendency toward participation in cervical cancer screening, which was conducted for stratification of the screening participating tendency. Thirdly, for each stratum, those women were randomly allocated into one of two groups. Random numbers were generated by the SAS program using its RANUNI function, which gave a random number for each participant based on uniform distribution. Then the participants were sorted by ascending random number to rearrange the list with random order. Those who were before and after the halfway point of the list were assigned as intervention and control groups, respectively. Each stratum was randomized using this procedure.

For the interventional groups in low-, medium-, and high-level tendency, a list of mobile phone numbers was provided in Excel format to the technology company. To assure the quality of mobile message sending for eligible cervical cancer screening population, the only one technology company was authorized to manage the sending task and was supervised by the Health Bureau of Keelung. The eligible population list, tendency calculation, and randomization were analysed and implemented by staff of the Health Bureau. The mobile text message sending lists were provided without any personal identification information. All procedures were centralized by this specific staff.

Intervention: Automated mobile text messaging reminder (AutoSMS)
Based on the limit of 70 Chinese (140 characters) in mobile text messages in Taiwan, the content of text message was proposed by the Division of Health Promotion, Health Bureau of Keelung City after back-and-forth discussion and revision. The final text for message reminder was “” .

The translation in English is “Both incidence and mortality of cervical cancer in Taiwan were dramatically decreased due to cervical cancer screening. We sincerely remind you it is the time for cervical cancer screening, please go to your local hospital to take a Pap smear. Do not disregard your health no matter how busy you are. We always considerate of your health.”

Timing for text message sending
For those women who were randomly assigned to the interventional group, we sent this text message on 2nd April 2019 and 17th April 2019. The mobile text message was sent automatically by a single technology company.

Results of text message sending
According to the response collection from automatically sending, there were four types result were reported by individual, including reached, wrong number, overdue, and suspended.

Control group: No mobile text messaging reminder during study (NoSMS)
After the randomization procedure, those who were randomly assigned into control group were not sent any information regarding the cervical cancer screening. The researchers conducted a time delay design in control group to evaluate the effectiveness of mobile text message reminder sending. Therefore, the automated mobile text message reminder was sent on 11th June 2019 at the end of observational follow-up period for this trial.

Intervention Type
Behavioural

Primary outcome(s)
Attendance for Pap smear within 70 days of the first mobile text message reminder being sent assessed by matching the participant information with the National Cervical Cancer Screening Registry System, which includes the date of participating pap smear, smear results, date of further referral, and basic results.

Key secondary outcome(s)
N/A

Completion date
09/07/2019

Eligibility

Key inclusion criteria
1. Women aged 30 years or over
2. Have never had a cervical smear test or have not had one for at least 3 years
3. Have mobile phone number recorded in cervical cancer screening management system

Participant type(s)
Mixed

Healthy volunteers allowed
No

Age group
Adult

Sex
Female

Key exclusion criteria
No mobile number in cervical cancer screening management system

Date of first enrolment
15/03/2019

Date of final enrolment
20/03/2019

Locations

Countries of recruitment
Taiwan

Study participating centre
Health Bureau of Keelung
No.266, Sin 2nd Rd,
Sinyi District
Keelung
Taiwan
201

Sponsor information

Organisation
Taiwan Ministry of Science and Technology

Organisation
Chang Gung Memorial Hospital and Chang Gung University

Funder(s)

Funder type
Government

Funder Name

Ministry of Science and Technology, Taiwan

Alternative Name(s)
Ministry of Science and Technology, R.O.C. (Taiwan), Ministry of Science and Technology of Taiwan, MOST

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
Taiwan

Funder Name
Chang Gung University

Alternative Name(s)
, CGU

Funding Body Type
Private sector organisation

Funding Body Subtype
Universities (academic only)

Location
Taiwan

Funder Name
Chang Gung Memorial Hospital, Linkou

Alternative Name(s)
Linkou Chang Gung Memorial Hospital

Funding Body Type
Private sector organisation

Funding Body Subtype
Other non-profit organizations

Location
Taiwan

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study are/will be available upon request from Dr. Sherry Yueh-Hsia Chiu. The dataset will be anonymous, without any personal identification. The person who would like to request should send the proposal including study aim, methods, and application and is also requested to complete an authorization form. The dataset will be provide under ethics committee review. The contact information is: Dr. Sherry Yueh-Hsia Chiu, email: sherrychiu@mail.cgu.edu.tw, Telephone: +886-3-2118800 ext 5250.

IPD sharing plan summary

Available on request