STUDY PROTOCOL

Use of nicotine replacement therapy (NRT) sample and brief smoking cessation advice for recruiting smokers to smoking cessation services and motivating quit attempts

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1. Project title

Use of nicotine replacement therapy (NRT) sample and brief smoking cessation advice for recruiting smokers to smoking cessation services and motivating quit attempts

2. Investigators

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3. Study sites

Outdoor smoking hotspots: Outdoor public areas where smokers cluster to smoke near rubbish bins with an ashtray

4. Aims of the project

This project aims to motivate smokers to use SC services and/or have quit attempts by NRT sampling and brief SC advice. The objectives are:

1. Deliver brief SC advice to the smokers who smoke at outdoor smoking hotspots

2. Promote the use of NRT for quit attempts with NRT sampling.

3. Evaluate the effectiveness of NRT sample on the use of any SC service, quit attempts and abstinence.

5. Outcomes

Phase 1: Training outcomes

The knowledge, attitude, and practice of SC among the participants in the workshop will be evaluated through completing a survey before and immediate after, and 6 months after the training.

Phase 2: Process outcomes of the promotion

The primary process outcomes are the number and proportion of smokers that can be recruited for further follow-up, including those who will not participate in the RCT but agree to enroll in the SC clinics. We hypothesize that the promotion sessions providing NRT sampling will recruit more smokers, and greater proportion of recruited smokers among those who will be approached than those sessions without NRT sample. Other secondary process outcomes include (1) total number of smokers who can be approached in outdoor urban places; and (2) number of smokers who accept the brief SC advice. All these indicators will be documented by the SCAs in the promotion sessions.

Phase 3: Quitting outcomes

The evaluation aims to assess the effectiveness of NRT sampling on using the SC services and quit attempts, by comparing the outcomes between the experimental group and the control group. The two primary outcomes include (1) the proportion of smokers who enroll in any SC service in Hong Kong within 1 month of the recruitment; and (2) the proportion of smokers who report quit attempts at 1 month follow-up. Secondary outcomes include (1) the above outcomes at 3-month follow-up; (2) self-reported use of NRT in past month at 1- and 3-month follow-up; (3) self-reported tobacco abstinence in past 7 days and 4 weeks at 3- and 6-month follow-up; (4) biochemically validated abstinence at 6-month follow-up; (5) perceived importance, difficulty and confidence to quit smoking (score 0-10); (6) progression towards smoking cessation as measured by Incremental Behavior Change toward Smoking cessation (IBC-S) [1]. All self-reported outcomes will be assessed either

by telephone or WhatsApp by allocation-blinded interviewers at 1, 3 and 6 months after the recruitment. Self-reported quitters (no use of tobacco products for 7 days) will be invited for examination of exhaled carbon monoxide with a Smokerlyzer, and to undertake a saliva cotinine test. Validated quitters were defined by exhaled CO < 4 ppm and salivary cotinine < 10 ng/ml, which have been confirmed as the cut-off in clinical trials to verify smoking abstinence [2,3]. A HK$50 shopping voucher will be given for each participation of follow-up and biochemical validation. We have much experience for the above and have reported these in many papers [4-8].

6. Estimated duration and commencement date

Proposed starting date: 1 July 2018
Proposed study completion date: 30 June 2020
Expected final report date: 30 June 2020

7. Scientific/historical background

Health needs of the local community

Smoking causes cancers, coronary heart diseases and many more chronic diseases. Hong Kong still has more than 640 thousands daily smokers [9], and half of them will die of smoking-related diseases [10]. Although free smoking cessation (SC) services and occasional promotion activities are available, about 30.8% of daily cigarette smokers in Hong Kong have tried but failed to quit smoking, and 63% have never tried and did not want to quit [9]. The existing SC services have difficulties to attract smokers to come forward, but service providers lack resources and cost-effective methods to recruit smokers proactively. More specific interventions to enhance the utilization of SC service and quit attempts are needed.

Very few healthcare professionals can deliver SC counselling or other interventions in the busy clinical settings [11-13]. To promote SC in the community, brief SC advice (AWARD, See Implementation plan/Procedure) and training of non-healthcare professionals for delivery of simple SC advice have been well developed by our team in Hong Kong [5, 7]. Yet, the recruitment for smokers is still difficult as we have shown that “hardcore” smokers – who are less motivated to quit and less likely to seek service – are increasing in Hong Kong [14]. Also, more immediate quitting assistance is needed for the recruited smokers in

the community-based SC promotion [6, 15], as any delay can result in default.

Smokers are addicted to tobacco because tobacco delivers nicotine to the central nervous system, which leads to the desired psychological reactions and induces dependence. In the early phase of quitting, the lack of nicotine causes withdrawal symptoms such as headache, coughing, difficulty in concentration etc. By slowly delivering nicotine to cope with the dependence, nicotine replacement therapy (NRT) is a safe and effective pharmacotherapy to reduce withdrawal symptoms during early abstinence and smoking reduction, which increases the quit rate by 4-fold in the longer term [16]. A recent study has shown that NRT works better than many other behavioral interventions for smoking cessation [17]. Although NRT can be purchased over the counter without doctor's prescription, or obtained freely from local SC clinics, only 9.8% of quit attempters had used medications for their quit attempts [9]. The corresponding proportion in Australia, Canada, the UK and the USA is at least 30% [18, 19]. In contrast, over 80% of Hong Kong quit attempters relied on self-determination [9], which has a low success rate and easily leads to smoking relapse. The low prevalence of using NRT may be due to the higher absolute price of NRT per day (US$5.43 per day) [8] than, say, in the USA (US$2.41–3.62 per day) [20], and the low utilization of SC services which provide free NRT.

Although some social marketing of SC has been done in Hong Kong, very few programmes promote the use of NRT. Existing SC services provide free NRT to smokers, but the smokers must first enroll in the SC services. That means majority of smokers, who do not know or use SC services, have low literacy of NRT use and its effectiveness.

To sum up, the following health care needs regarding SC promotion in Hong Kong should be addressed: (1) Many current smokers still have no quitting intention (2) Many smokers are unable to quit smoking using self-determination, (3) The low success rate of quitting is attributed to the under-utilization of existing SC service and low use of effective medications such as NRT.

Literature review on others' strategies to address these needs

Proactive approach of smokers at outdoor smoking hotspots is a new strategy initiated by our team to promote smoking cessation. Smoking hotspots are non-smoke-free urban places where many smokers gather to smoke around a rubbish bin with an ash tray to collect cigarette butts. We applied this approach by training university students to deliver brief SC

intervention to the smokers at these hotspots [15]. The brief intervention included brief advice, printed materials and introduction of the quitline (1833183). This pilot study showed that this approach was feasible and accepted by the smokers [15].

To further show the efficacy and cost for this approach, we obtained funding from the Health Care and Promotion Fund to extend the promotion and evaluate more outcomes in 2014-15 (Ref no. 06130205). This funded project showed that the promotion approached 3096 smokers and recruited 210 smokers at a reasonable cost, particularly for youth smokers and those who wanted to quit [6]. About 10% of the recruited smokers from smoking hotspots reported abstinence at 6-month follow-up. Upon the invitation of the Health Research Symposium 2017, we presented a paper about this study on 16 June 2017. The findings of this study has been published in a renowned tobacco and public health journal (Nicotine and Tobacco Research)[6].

Further developments and improvements are needed to increase the impacts. First, the recruited smokers in the community were not further given more tailored and intensive interventions, and therefore some particularly heavy-smoking smokers would feel difficult to quit. We found that about 72% of the recruited smokers had intention to quit, who should be receptive for further intervention. Second, majority of the approached smokers did not consent to the follow-up by counsellors. These smokers, who were similar to the majority of smokers in the community, probably chose to quit without seeking assistance from healthcare professionals [7], or were hardcore smokers who were less likely to notice or use available SC services [14].

These service gaps could be filled by (1) designing more effective ways to motivate quitting intention, (2) providing more immediate information and motivation of using NRT in their quit attempts, (3) enhancing smokers to try NRT first, (4) enhancing the continuing access of NRT through enrolling in the SC services or purchasing NRT over-the-counter.

Scientific evidence supporting the strategies to address these needs proposed in this project

Providing NRT sample and brief advice to the non-help-seeking smokers who are recruited at smoking hotspots is novel and warrants further exploration. Receiving free NRT immediately after recruitment can reduce the financial and time cost for trying this effective medicine. Previous randomized trials have confirmed that the delivery of NRT sample (less than 5-week dosage) increased quit attempts and prolonged abstinence [21-23]. The NRT

sample also increased smokers' motivation and confidence to quit [21, 22]. The smokers in these trials were recruited in the community, and they were either unmotivated to quit, or not ready to receive intensive smoking cessation. No or only brief counselling sessions were included in these interventions. Therefore, delivering NRT sample immediately after giving SC advice to the smokers may increase the motivation to quit and use of quitting assistance. Also, the findings from the studies above are particularly applicable to our SC promotion in smoking hotspots which targets similar smokers in the community.

The feasibility and effectiveness of providing NRT sample at smoking hotspots is novel and has been preliminarily evaluated by our team. We propose 1-week NRT as it is the cheapest and has been shown that the effectiveness on abstinence was similar to 2-week NRT [24]. In a feasibility study conducted by the SC clinics of Tung Wah Group of Hospitals (TWGHs), about three quarters of the approached smokers at outdoor smoking hotspots (77.6%, 548/706) accepted NRT sample. In the smokers who received the NRT sample, about 40.1% (n=220) enrolled in the SC service. In our recent pilot randomized controlled trial (RCT), we examined if 1-week NRT could improve quitting outcomes in the smokers who were recruited at smoking hotspots. The study protocol has been published in the journal Trials [25]. In all the invited smokers in the recruitment, the proportion of participation was very high (81.3%). The preliminary results showed that NRT sampling substantially increased use of NRT (34% versus 2%, Risk ratio = 17.00, 95% CI 2.33-124.15) and quit attempt (defined as no smoking intentionally for at least 24 hours, 26% versus 12%, RR = 2.17, 95% CI 0.89-5.27) at 3-month follow-up. These findings have shown that using NRT sample to enhance quitting and using SC services is feasible and well accepted. However, due to the small sample size and wide confidence intervals of the trial results, the results hardly confirmed the effectiveness for the quitting outcomes. Also, the pilot study had not provided additional medication and other support, and had not referred the smokers to SC clinics, hence the 6-month quit rate was low (about 8%).

8. Study design

The proposed project has 4 phases: (1) Training of SC ambassadors (SCAs) for the SC promotion; (2) SC promotion sessions to deliver the medication counselling and NRT sampling (experimental group), or the advice to use NRT only (control group); (3) Follow-up of the recruited smokers; (4) Evaluation of the effectiveness of training, promotions, and use of NRT sampling. To examine the effectiveness of NRT sampling for recruitment and

quitting, a multi-site cluster RCT (allocation ratio 2:1) will be used. All promotion sessions will be randomly allocated to either the experimental or the control group. The experimental group will receive medication counselling and NRT samples, while the control group only receive the advice to use NRT. Because smokers who receive NRT sampling will be more likely to participate in the study, the experimental sessions will then recruit more smokers than the control sessions. Hence, the allocation ratio of participants is arbitrarily set at 2:1. To increase comparability between the two groups, the promotion sessions of one hotspot will be randomly allocated to either group. All recruitment and quitting outcomes in the smokers between the experimental and control group will be compared.

9. Subjects

Smokers with the following inclusion criteria will be invited to participate in our RCT: (1) Hong Kong residents, (2) aged 18 to 65 years, (3) have used any tobacco products in the past month, (4) able to read and speak Chinese, (5) have not used NRT for the past month, (6) no severe angina, serious cardiac arrhythmias and hypertension, (7) have not suffered acute myocardial event in the past 4 weeks, (8) neither pregnant nor breastfeeding, (9) not under medication and treatment due to mental illness. To confirm the smoking status, in those who use conventional cigarettes, smokers' exhaled carbon monoxide will be measured on-site. Nurses on truck will measure the blood pressure if smoker is aged over 50 years old, obese by observation, or upon patient requests.

10. Procedures

In the experimental sessions, the SCAs will approach and distribute souvenirs (e.g. a pen) or leaflets to the smokers at outdoor smoking hotspots for 3-4 hours. The souvenirs and leaflets will have SC messages, quitline number and other SC services. If a smoker is willing to accept them and talk to the SCAs, the SCAs will advise the smoker to quit using the AWARD protocol. The AWARD protocol includes (1) **A**sk the smoking history, (2) **W**arn about the high risk (i.e., half of the smokers will die of smoking-related diseases), (3) **A**dvise to quit, (4) **R**efer to the SC clinics of TWGHs and (5) Repeat the above advice (**D**o-it-again) [4]. Our previous studies have shown that the AWARD protocol is a feasible and appropriate tool used by non-healthcare professionals to promote smoking cessation [4-6]. If the smoker is interested in using the SC services, the SCAs will introduce NRT to the smoker and conduct a preliminary assessment of his/her eligibility for enrolling in the "NRT sampling" programme. The SCAs will invite him/her to go to the smoking cessation

truck nearby to receive counselling by an onsite nurse. If the smoker is not eligible, he/she can still enroll in the cessation service provided by the SC clinics.

11. Intervention: NRT sampling and medication counselling

In the experimental sessions, an onsite nurse will assess whether each participant is fit for using NRT with further assessment on his/her current physical status, medication and blood pressure. If the participant is willing to use NRT to quit smoking and pass the nurse's assessment, he/she will be prescribed the NRT sample, regardless of whether they use NRT for smoking reduction and when the quit day is. The nurse will help the participant decide which type of NRT product (gum: 2mg, patch: 14mg or 21mg) that he/she can use and advise him/her on how to use the NRT based on his/her smoking habit and daily cigarette consumption. In addition, the nurse will deliver medication counselling which addresses five main components: (1) the benefits for using NRT in quitting, (2) withdrawal symptoms due to smoking cessation, (3) side effects of NRT, (4) instructions for using NRT, and (5) making appointments for TWGHs SC clinics. Afterwards, the participant will receive 1-week free NRT and an instruction card about the use of NRT.

In the control sessions, all the above procedures for the experimental group will be applied, except that they will not receive an NRT sample and an instruction card about the use of NRT. Instead, they will be advised to obtain free NRT by enrolling in the SC clinics. Both groups will receive a one-page leaflet provided by the SC clinics.

As this trial is a pragmatic trial, flexible procedures will be adopted based on the actual interaction with the participant. Firstly, the intervention components and filling in of baseline questionnaire may be carried out prior to seeking the consent from the participant if it is deemed more suitable in the situation and can make the procedures run more smoothly. Secondly, if the recruitment venue is not suitable for drug dispensing, the NRT sample and the use instructions will be register-mailed to the participants' address instead of given immediately. All NRT will be prescribed by registered nurses. The research assistant will also contact the participants to confirm that they have received the NRT. This arrangement of mailing the NRT sample complies with the Pharmacy and Poisons Ordinance of the Drug Office.

12. Randomization

We will use cluster randomization based on promotion session as the cluster unit because the procedures of individual randomization are difficult in outdoor areas as found in our pilot RCT. The PI will randomly allocate the promotion sessions within a hotspot to the 2 groups by a list of group allocation which is based on a list of random numbers from Excel programme. Each hotspot will have 2 or more promotion sessions, and each session will last for about 3-4 hours. If a hotspot has 2 promotion sessions on 1 single day, the 2 sessions will be allocated into the same RCT group, and we will organize 2 more promotion sessions in this hotspot on another day.

13. Allocation concealment

All recruitment staff will know the group allocation before each promotion session, so no group concealment can be done.

14. Blinding

Participants cannot and will not be blinded to the intervention. Assessors of the follow-up outcomes and the research analysts will not be involved in the recruitment and intervention delivery, and will be blinded to the group allocation (single blindness).

15. Follow-up

All the smokers who consent to the follow-up will be contacted via telephone or WhatsApp around one week by a nurse or a research assistant after recruitment. The aim of this follow-up is to enquire if there is any progress towards cessation and encourage the use of NRT and/or enrollment in SC services.

At 1-, 3- and 6-month follow-up, the quitting outcomes will be assessed by a trained interviewer through telephone who is blinded to the subject's group status.

15.1 Intervention Group

15.1.1 Participants who receive NRT samples and whose quit day is within one week after baseline

A TWGHs nurse who is experienced in delivering smoking cessation will contact the participants around one week after baseline. The nurse will provide more intensive counseling to the smoker, especially on the use of NRT. All the smokers will be asked if

they have used any NRT and have any difficulties in using NRT, and will be given more counseling via telephone if necessary.

15.1.1.1 Participants who have used NRT

The TWGHs nurse will encourage him/her to obtain additional free NRT by enrolling in the SC clinics for the continuation of NRT use. If the smoker is unwilling to enroll, the nurse will advise him/her to purchase NRT over-the-counter. Other SC services will also be introduced or referred if the participant wants more other services.

15.1.1.2 Participants who have not used NRT but is willing to use later

The TWGHs nurse will advise him/her to use as soon as possible and invite him/her to receive one more follow-up within 1 month as long as the smoker provides the contact number and agrees to be contacted.

15.1.1.3 Participants who show no interest to quit

The TWGHs nurse will use the “5R” approach to re-motivate the quitting intention. The “5R” approach is being adopted by the local and international smoking cessation guideline including the discussion on why quitting is important (relevance), hazards of smoking (risk), benefits of quitting (rewards), difficulties (roadblocks) and repeated quit attempts (repetition).

15.1.1.4 Participants who have contra-indication(s) to NRT

If the smoker tells the nurse that he/she has contra-indication(s) to NRT, the nurse will advise him/her to stop using NRT to avoid risks.

15.1.1.5 Participants who continue smoking during the use of NRT

If the smoker has a dual use of cigarettes and NRT, the nurse will advise him/her to stop using NRT to avoid overdose.

15.1.2 Participants who receive NRT samples and whose quit day is more than one week after baseline

The research assistant will contact the participants around one week after baseline. The participants will receive motivational messages to encourage them to quit and enroll in the

SC clinics if they have not. They will also be asked if they need to contact the TWGHs counsellors for early cessation support. Otherwise, the participants will be contacted by the TWGHs nurse around one week after their quit day as outlined above in section 15.1.1.

15.1.3 Participants who do not receive NRT samples but make an intake appointment within one week after baseline

A TWGHs nurse will contact the participants within one week after baseline reminding them to attend the intake session. The nurse may contact some participants via phone for provision of further counselling or encouragement if necessary.

15.1.4 Participants who do not receive NRT samples but make an intake appointment more than one week after baseline

The research assistant will contact the participants around one week after baseline. The participants will receive motivational messages to encourage them to quit. They will also be asked if they need to contact the TWGHs counsellors for early cessation support. The participants will receive reminder message from the TWGHs nurse before their intake appointment.

15.1.5 Participants who do not receive NRT samples and do not make an intake appointment

The participants will receive motivational messages from the research assistant around one week after baseline to encourage them to quit and enroll in one of the SC clinics.

15.2 Control Group

15.2.1 Participants who make an intake appointment within one week after baseline

A TWGHs nurse will message the participants within one week after baseline reminding them to attend the intake session. Meanwhile, the nurse may contact some participants via phone for provision of further counselling or encouragement if necessary.

15.2.2 Participants who make an intake appointment more than one week after baseline

The research assistant will contact the participants around one week after baseline. The participants will receive motivational messages to encourage them to quit. They will also

be asked if they need to contact the TWGHs counsellors for early cessation support. The participants will receive reminder message from the TWGHs nurse before their intake appointment.

15.2.3 Participants who do not make an intake appointment

The participants will receive motivational messages from the research assistant around one week after baseline to encourage them to quit and enroll in one of the SC clinics.

16. Indicators and targets

Our targets will be as follows:

1. Train 40 tertiary students to be SCAs
2. Deliver brief SC advice to 2,400 smokers (1,200 in the experimental and 1,200 in the control group)

Experimental group

3. Provide NRT sample to 720 smokers (60% of all the approached smokers), who also consent to the follow-up
4. Motivate 288 smokers (40%) to use any SC services
5. Motivate 144 smokers (20%) to attempt quitting (intended abstinence for at least 24 hours).

Control group

6. 360 smokers (30% of all the approached smokers) will consent to the follow-up.
7. Motivate 72 smokers (20%) to use any SC services
8. Motivate 28 smokers (8%) smokers to attempt quitting

Both groups

9. 108 smokers report abstinence (for the past 7 days) at 6-month follow-up (30% of all

the 360 smokers who use any SC services)

17. Sample size determination

To detect a significant difference of the rate of quit attempt (20% versus 8%) with normal test and a power of 95% and 5% significance level, we need 485 subjects in the RCT (allocation ratio 2:1; 323 vs 162). Based on the method of Eldridge et al. (2006) [26], conservatively assuming that we could recruit 8 participants per session on average and the intra-cluster correlation coefficient was 0.1, the design effect is estimated to be 1.7. Thus, the minimum sample size required for the trial is 825 (=1.7 X 485) participants and 60 sessions in total. With the similar calculation, the required sample size for detecting a significant difference in the proportion of using any SC service is 421. Therefore, our targeted sample size is sufficient to answer the research question.

18. Data analyses

To assess the change of knowledge, attitude and practice of SC due to the participation of the SCA workshop, all the outcomes will be tested by McNemar's test (binary outcomes) and pair-sample t-test (continuous outcomes).

To assess the effect of NRT sampling to the recruitment outcomes, the number of smokers who accept the brief advice or consent for the trial in each promotion session will be the outcome variables of Poisson regression model, with group allocation as the predictor, and total number of approached smokers in that promotion session as the offset variable.

To compare the two primary quitting outcomes (binary) between experimental and control group, generalized estimating equations model will be used. Other secondary outcomes will be analyzed with either generalized estimating equations models (binary outcomes; e.g. tobacco abstinence) or linear mixed model (continuous outcomes; e.g. perceived importance to quit smoking).

Cost analysis will be conducted to assess if the intervention is cost-effective, as what we did in our published paper [5]. Direct operating costs included salary (of training personnel, research assistants and SCAs), recruitment, telephone follow-up and publicity items. The total operation costs for the experimental group will include the cost for NRT sampling. Costs for study design, venues for training (provided by HKU), analysis, report writing and

irrelevant administration were excluded. In each group, the cost per successfully recruiting a smoker to receive any SC service was calculated by dividing the total cost by the number of smokers who report use of any smoking cessation. Similarly, the costs per quit attempt will also be calculated.

19. Time-line:

	2018						2019												2020					
	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6
HCPS – NRT sampling																								
Development of the intervention, instruments and protocol																								
Site selection																								
Recruitment of ambassadors																								
Training for staff, ambassadors and nurses																								
Subject recruitments																								
3-day / 1-month follow-up																								
3-month follow-up																								
6-month follow-up (+validation)																								
6-month follow-up for SCAs																								
Data entry and cleaning																								
Data analysis																								
Report preparation																								

20. Describe any unusual or discomforting procedures to be used: Nil.

21. Are there any hazards associated with the investigation? No.

22. Ethical and legal issues

According to the Drug Database of the Drug Office under Department of Health (http://www.drugoffice.gov.hk/eps/do/en/consumer/search_drug_database.html), all NRT products (in all forms and dosages) are classified as Part 2 Poisons and are referred as over-the-counter medicines. All Part 2 Poisons are regulated by the Pharmacy and Poisons Ordinance (Cap. 138). Accordingly, Part 2 Poisons can be sold in a pharmacy (ASP) or a medicine (LSP). They can also be supplied for the purpose of medical treatment by a person, who is not necessarily a medical practitioner, who practices medicine in a clinic registered in the Medical Clinics Ordinance.

The present proposal targets to deliver a 1-week of free NRT to the smokers at the outdoor smoking hotspots, so that the smokers can obtain and use them as soon as being motivated to quit. To fully comply with the Ordinance, our collaborator (Tung Wah Group of Hospitals) has already registered a license from the Pharmacy and Poisons Board for their smoking cessation truck, which can park nearby the outdoor hotspots, so that our registered nurses can legitimately prescribe NRT to the recently-recruited smokers in this truck. The truck is a mobile clinic which can provide brief counseling sessions and medications like a clinic. The student ambassadors will mainly be responsible to approach the smokers at the hotspots and invite them to receive advice and NRT in the truck.

Other measures will also be undertaken to protect the participants: (1) Our intervention will include a brief advice about how to correctly use the NRT, side effects and other safety measures. Hence, our intervention is even safer than smokers buying over-the-counter NRT from pharmacy without any advice. (2) Only registered nurses will be responsible to provide NRT to the participants. (3) All on-site documentations will be locked in a cabinet of the truck, and handled carefully by the project coordinators. We will strictly follow the data security guideline under the University of Hong Kong. (4)

Participants who do not meet the inclusion criteria will be suggested to meet the physicians in the smoking cessation clinics and obtain the medication advice from the physicians before using NRT. They will not be included in this trial. This will help ineligible participants to use NRT safely. (5) The pilot study of the present proposal was fully reviewed and approved by the Institutional Review Board (IRB) of the University of Hong Kong / Hospital Authority Hong Kong West Cluster (Ref: UW 15-232). Therefore, our procedures and interventions met the ethical requirement and protect participants' privacy. We have already submitted the IRB application for the present study. The recruitment will only start when the research is approved by the IRB.

23. Direct access to source data/documents

The raw data will be stored in the CD-ROM and locked in a cupboard with keys kept by the Principal Investigator. Only the Investigators and Research Assistant of the project will be permitted to access to raw data and/or study record. The data will be kept for 10 years or longer after the study completed.

24. Dissemination of study result

The research findings will be disseminated through publication in international peer reviewed journals including American Journal of Health Promotion and Nicotine & Tobacco Research. Papers will also be presented in international conferences such as (1) the Annual Scientific Meeting of the Society on Research on Nicotine and Tobacco (SRNT); national conferences such as (2) the Asia Pacific Conference on Tobacco or Health and Cross-strait Conference on Tobacco Control (China, Hong Kong, Macau and Taiwan); and (3) regional conferences in Mainland China and Hong Kong.

25. Consent

Eligible participants will be invited to participate in the study by obtaining written consent.

26. Conflict of interest: None

27. Financing and insurance

This research is funded by Health and Medical Research Fund of the Food and Health Bureau.

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