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綜合基層醫療健康協作平台推動之項目

# POLICY BRIEF

# MOBILE SMOKING CESSATION TREATMENT WITH 1-WEEK NICOTINE REPLACEMENT THERAPY SAMPLING AT OUTDOOR SMOKING HOTSPOTS

## *LESSONS FOR MAINLAND CHINA FROM HONG KONG'S EXPERIENCE*


**Key Points:**

- NRT sampling enables smokers to initiate quit attempts without demand of visiting clinics.
- Mobile smoking cessation treatment with 1-week NRT sampling offers lower costs per smoker.
- Mobile smoking cessation treatment in outdoor smoking hotspots is feasible and could be a valuable approach for improving public health.

## BACKGROUND

Tobacco use remains a leading cause of preventable death globally, with over half of tobacco users dying prematurely from tobacco-related diseases. Despite the availability of evidence-based smoking cessation (SC) treatments, such as counseling and medications, uptake remains low, particularly in low- and middle-income countries. Offering short-term nicotine replacement therapy (NRT) sampling has shown promise in promoting quit attempts and increasing the use of SC services. However, the impact of NRT sampling on long-term abstinence and SC service utilization remains unclear.

This policy brief summarizes the findings of a cluster randomized controlled trial evaluating the effectiveness of mobile SC treatment with 1-week NRT sampling at outdoor smoking hotspots. The study aimed to increase recruitment, quit attempts, SC service use, and tobacco abstinence among daily smokers. The lessons learned from the experience in Hong Kong can provide valuable insights for Mainland China to enhance its smoking cessation efforts.

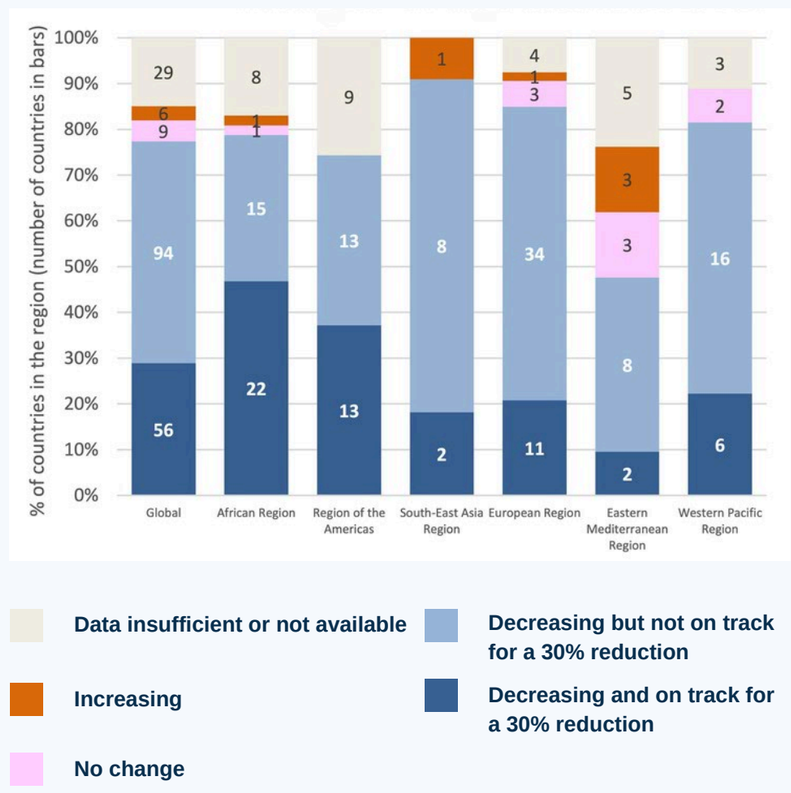


**Figure 1.** Status of tobacco use prevalence reduction target by WHO region in 2022. Adapted from WHO global report on trends in prevalence of tobacco use 2000-2030.

# RESEARCH METHODOLOGY

The study was a two-arm cluster RCT with a 1:1 allocation ratio, conducted at 244 recruitment sessions in outdoor smoking hotspots in Hong Kong from October 2018 to December 2019.

A total of 1,392 individuals were screened for eligibility, and 834 participants were randomized into the experimental group (n = 482, 57.8%) and the control group (n = 352, 42.2%). The intervention group received mobile SC treatment (15-min onsite nurse-led brief medication advice and referral to SC clinics) in renovated mobile truck, 1-week free NRT sample, and an NRT instruction card.

Overall, 81.3% of participants were male, with a mean age of 40.9 years (SD = 11.1). 64.1% of participants smoked 1 to 10 cigarettes per day, and 44.6% reported smoking within 5 minutes of waking up.

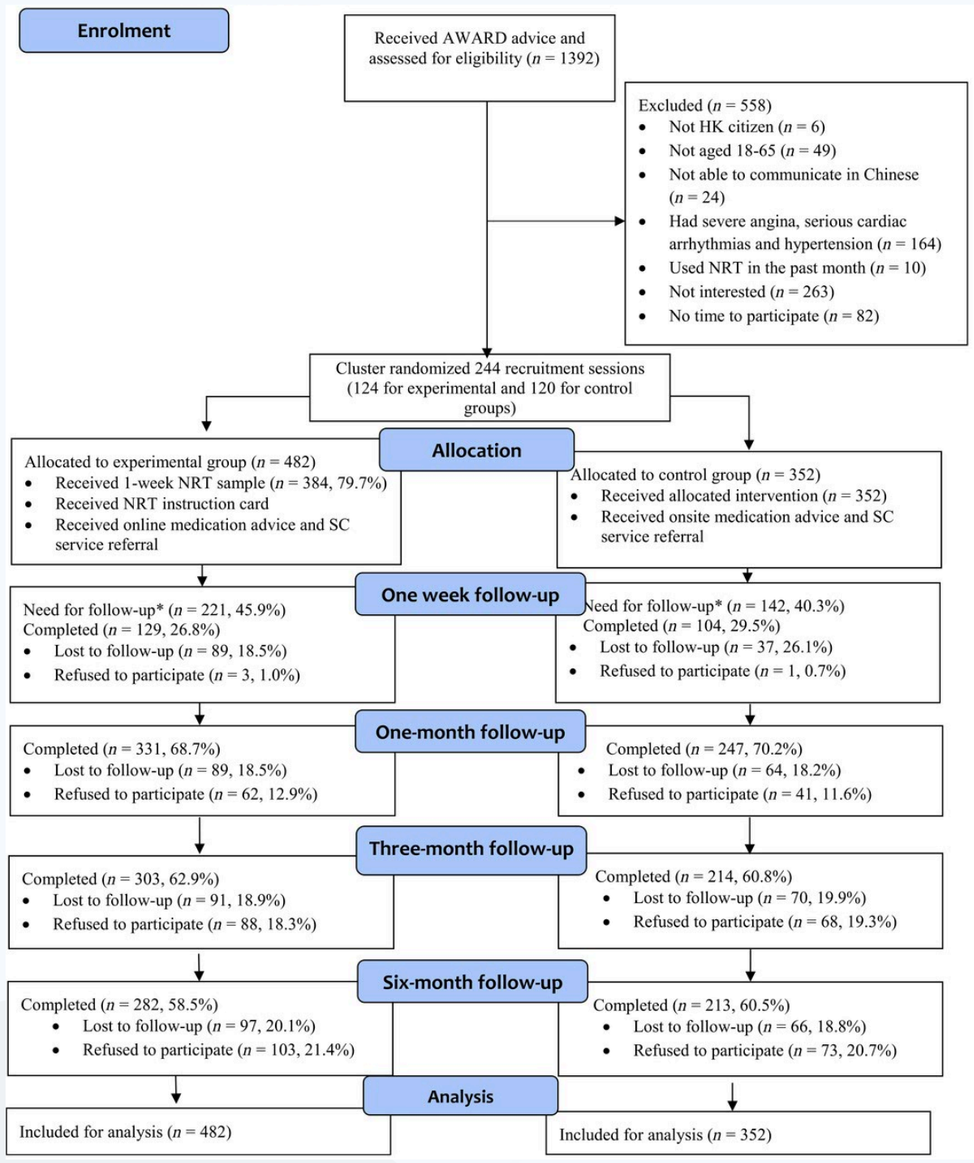


**Figure 2.** The consolidated standards of reporting trials (CONSORT) flow diagram.

# KEY FINDINGS

## Mobile outreach on quit attempt rate

At one month follow-up, the experimental group had a slightly higher quit attempt rate (44.4% vs. 43.5%), though the difference was not significant. Participants receiving the NRT sample had significantly less demand for smoking cessation services at clinics, with only 32.4% seeking services in the intervention group, compared with 44.9% in the control group.

## Intervention impact on smoking abstinence

For self-reported abstinence, the 7-day and 30-day point prevalence rates were similar between the intervention and control groups at the 3-month and 6-month follow-ups.

For biochemically validated quit rates, the six-month rate was also comparable between groups, being slightly higher in the experimental group (4.6%) than in the control group (2.8%) (RR = 1.64, 95% CI = 0.76–3.56).

## Mobile SC treatment lowers the average cost

The cost is an average of USD 77.50 for each smoker in the experimental group to receive on-site medication advice, compared with USD 98.70 in the control group. The experimental approach was roughly USD 21.20 (21.4%) cheaper per participant.

## Mobile outreach on quitting perception and attitude

The perceived importance, difficulty, and confidence to quit were comparable between the experimental and control groups at the 1-month, 3-month, and 6-month follow-ups.

While at 1 month, the intervention group had a higher score on incremental behavior change toward smoking cessation (IBC-S) (16.04 ± 3.24 vs. 15.12 ± 3.30, P = 0.014).

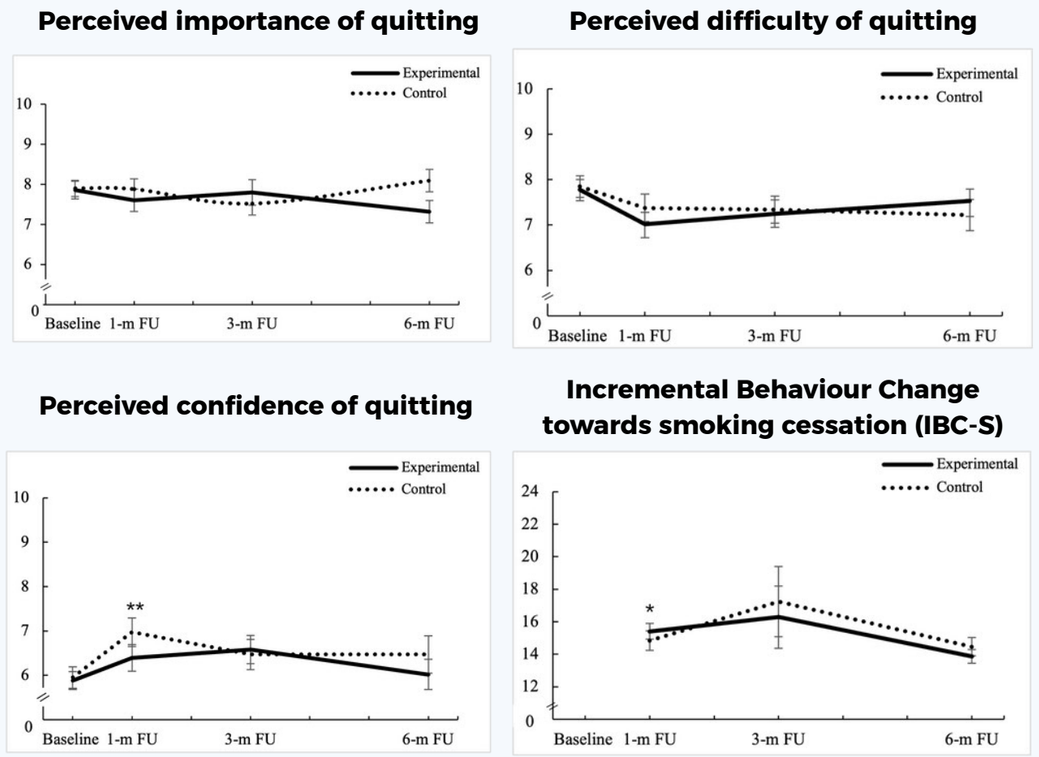


**Figure 3.** Changes in perceived importance, difficulty, confidence to quit, and IBC-S in baseline, 1-month, 3-month, and 6-month follow-up.

# POLICY RECOMMENDATIONS FOR MAINLAND CHINA

**1. Expand cost-effective mobile smoking cessation programs**

The study demonstrated that mobile smoking cessation treatment with NRT sampling offers lower costs per smoker compared with traditional clinic-based services. Recommendations for Mainland China are to scale up and allocate more resources for mobile SC interventions in high-smoking areas to reach smokers who are less likely to access clinic-based services, including those in underserved rural and urban areas. Data on cost analysis can also be used to advocate for increased funding and stronger policy support for mobile smoking cessation initiatives.

**2. Incorporate NRT sampling into public health campaigns**

NRT sampling allows smokers to initiate quit attempts without the need for a prior visit to smoking cessation clinics. These findings support the recommendation to integrate free or subsidized NRT sampling within existing local and national smoking cessation programs to attract more smokers to begin smoking cessation efforts.

**3. Enhance smoking cessation capacity training for healthcare professionals**

This study demonstrated the feasibility of nurse-led brief medication advice with NRT intervention delivered through mobile trucks for improving smokers' readiness and confidence to quit. To scale up mobile outreach, initiatives to train nurses, community health workers, and other healthcare professionals to deliver brief smoking cessation interventions are vital. Strengthening the intervention knowledge of the healthcare workforce will enable the integration of brief advice into routine healthcare services to reach a broader population.

## CONCLUSION

The experience with mobile SC treatment and NRT sampling in Hong Kong offers valuable lessons for Mainland China to enhance its smoking cessation efforts. By adopting mobile outreach strategies, incorporating NRT sampling, and enhancing healthcare professional training, Mainland China can improve access to SC services, increase quit attempts, and reduce the burden of tobacco-related diseases. These efforts will contribute to healthier communities and support national public health goals.

**Reference: He, W.J.A., Wang, Q., Chan, C.H.H., Luk, T.T., Wang, M.P., Chan, S.S.C., Lam, T.H., & Cheung, Y.T.D. (2025). Effectiveness of mobile smoking cessation treatment with 1-week nicotine replacement therapy sampling at outdoor smoking hotspots: A cluster randomized controlled trial. Addiction, 120(1), 106-115. https://doi.org/10.1111/add.16666**

**Professor Sophia CHAN**
Senior Advisor, President's Office, HKU;
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Professor Chan was appointed as undersecretary for Food and Health (2012-2017) and Secretary for Food and Health (2017-2022), notably leading Hong Kong's COVID-19 response and primary health care reforms including establishing District Health Centres, Hong Kong's first Chinese Medicine Hospital, and the Hong Kong Cancer Strategy 2019. Before her government roles, she was Head of the School of Nursing at HKU and Assistant Dean at HKU's Faculty of Medicine.

Professor Chan is internationally renowned in public health, tobacco control, and nursing research, with over 240 scientific publications and more than 3,800 citations. She is a top-funded researcher testing tobacco dependency interventions through RCTs. She pioneered the first smoking cessation counselling training for nurses and other heath care professionals in Hong Kong. Recognized with numerous prestigious awards, including the Gold Bauhinia Star, Fellow of the American Academy of Nursing, and Honorary Fellow of the Royal College of Physicians (UK), she also holds advisory roles with WHO and international nursing leadership boards.

**Professor Derek CHEUNG**
Assistant Professor, School of Nursing , HKU

Professor Cheung focuses on brief interventions, nicotine therapy sampling, ecological momentary assessment, and nursing education. Over the past six years, he secured five external competitive grants totaling USD 1.04 million as principal investigator. Derek has published 103 peer-reviewed articles in prestigious journals, achieving an h-index of 23 with 2,134 citations.

His research significantly informs professional training, clinical guidelines, and international policies. His innovative teaching methods in smoking cessation training have resulted in recent publications and an award from the Hong Kong International Nursing Forum, contributing substantially to tobacco control initiatives.

**Dr. Wanjia Aaron HE**
Research Assistant Professor, School of Public Health, HKU

Dr. He earned his Ph.D. from the Department of Rehabilitation Science at the Hong Kong Polytechnic University. In 2024, he took up the position as a Post-doctoral Fellow at the School of Public Health of the University of Hong Kong. His current research is centred around the use of Mobile-health (mHealth) interventions to influence health behaviours, including smoking cessation, alcohol control, and body management. Dr He is committed to enhancing public health through innovative use of technology and evidence-based interventions.

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