



From Risk to Resolve: A Scalable, Zero-Additional-Resource Integrated Smoking Cessation Model in Real-World Lung Cancer Screening

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IASLC 2026 World
Conference on Lung Cancer

SEPTEMBER 12 - 15, 2026
SEOUL, REPUBLIC OF KOREA

INTRODUCTION

Lung cancer screening (LCS) presents a unique "teachable moment" (TM) for promoting smoking cessation. Although intensive longitudinal interventions are efficacious, their incorporation into high-volume programs often necessitates substantial external funding and dedicated personnel, thereby constraining scalability in resource-limited environments. This study assesses the effectiveness of a "zero-additional-resource" model in which cessation counseling is seamlessly integrated into the existing clinical workflow of a real-world LCS program.

METHODS

The MOMENTUM-HP study enrolled 3,599 current smokers (aged >45 years) eligible for a one-time LDCT screening in Huangpu District, Shanghai. Utilizing an "opt-out" approach, brief cessation counseling was embedded into four established clinical touchpoints without the addition of external staff or longitudinal follow-up: (1) community-based risk assessment; (2) same-day LDCT scan; (3) result notification; and (4) specialist consultation (applicable only to participants with high-risk nodules). The primary outcome was self-reported 7-day point-prevalence tobacco abstinence at 6 months post-randomization. Secondary outcomes included 7-day abstinence at 3 months, a reduction in cigarettes per day (CPD) of more than 50% from baseline, and at least one deliberate 24-hour quit attempt.

DISCUSSION AND CONCLUSION

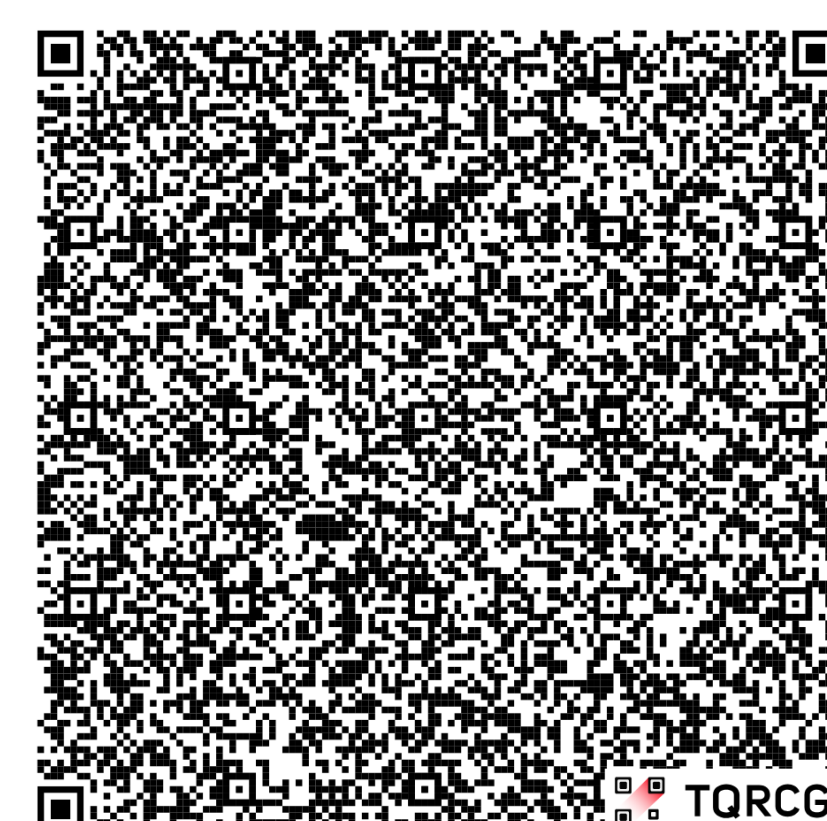
A fully integrated, zero-additional-resource cessation model is both highly effective and feasible within real-world LCS programs. The detection of high-risk findings followed by specialist referral serves as a potent catalyst for behavioral modification, whereby clinical authority and professional risk communication yield superior cessation outcomes. This model provides a scalable strategy to enhance the public health impact of LCS, particularly in regions lacking dedicated cessation infrastructure.

REFERENCES & ACKNOWLEDGEMENTS

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The AI tool was not used to design the study, analyze or interpret data, generate scientific concepts, or draw clinical/research conclusions.



RESULTS

Among the 3,599 participants, the 3-month self-reported abstinence rate was 23.0% (n=828), with 69.0% (n=2,483) reporting at least one deliberate 24-hour quit attempt. At the 6-month primary endpoint, the abstinence rate was 21.0% (n=756), and 41.0% (n=1,018) of persistent smokers achieved a reduction in daily cigarette consumption exceeding 50%. Notably, participants with high-risk nodules who received Stage 4 specialist intervention (n=1,206) demonstrated a significantly higher abstinence rate of 35.0% (n=422), compared to those with negative screening results who received only the first three stages (15.0%, n=359/2,393; $p < 0.001$).

Conclusion: A fully integrated, zero-additional-resource cessation model is both highly effective and feasible within real-world LCS programs. The detection of high-risk findings followed by specialist referral serves as a potent catalyst for behavioral modification, whereby clinical authority and professional risk communication yield superior cessation outcomes. This model provides a scalable strategy to enhance the public health impact of LCS, particularly in regions lacking dedicated cessation infrastructure.

