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Current status of High-risk Smokers Participating in Population-based National Lung Cancer Screening Program in Korea

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Background

- Following assessment of the effectiveness and feasibility based on the results from a two-year population-based nationwide prospective multi-center trial, the Korean government implemented a national lung cancer screening program using low-dose computed tomography (LDCT) for high-risk smokers in 2019.

Cancer	Age	Interval	Methods
 Lung	54-74, high risk group**	2 years	Low-dose Chest CT

Methods

- National Health Insurance Corporation selected high risk targets who are current smokers aged 54 to 74 years with 30 packs per year or more smoking history on the basis of national health-screening database. (Figure 1). Those eligible were offered lung cancer screening by invitation letters in every two years.
- Screening units provide LDCT using radiation less than 3mGy by at least 16-row multi-detector CT scanners. Screening results were reported by Lung Imaging Reporting and Data System (Lung-RADS).
- The examinee received results by mail or e-mail; after then, counseling on results and mandatory smoking cessation counselling were provided by certified doctors.
- National Cancer Center monitored participation rates, post-counseling rates and statistics of screening result for quality control.

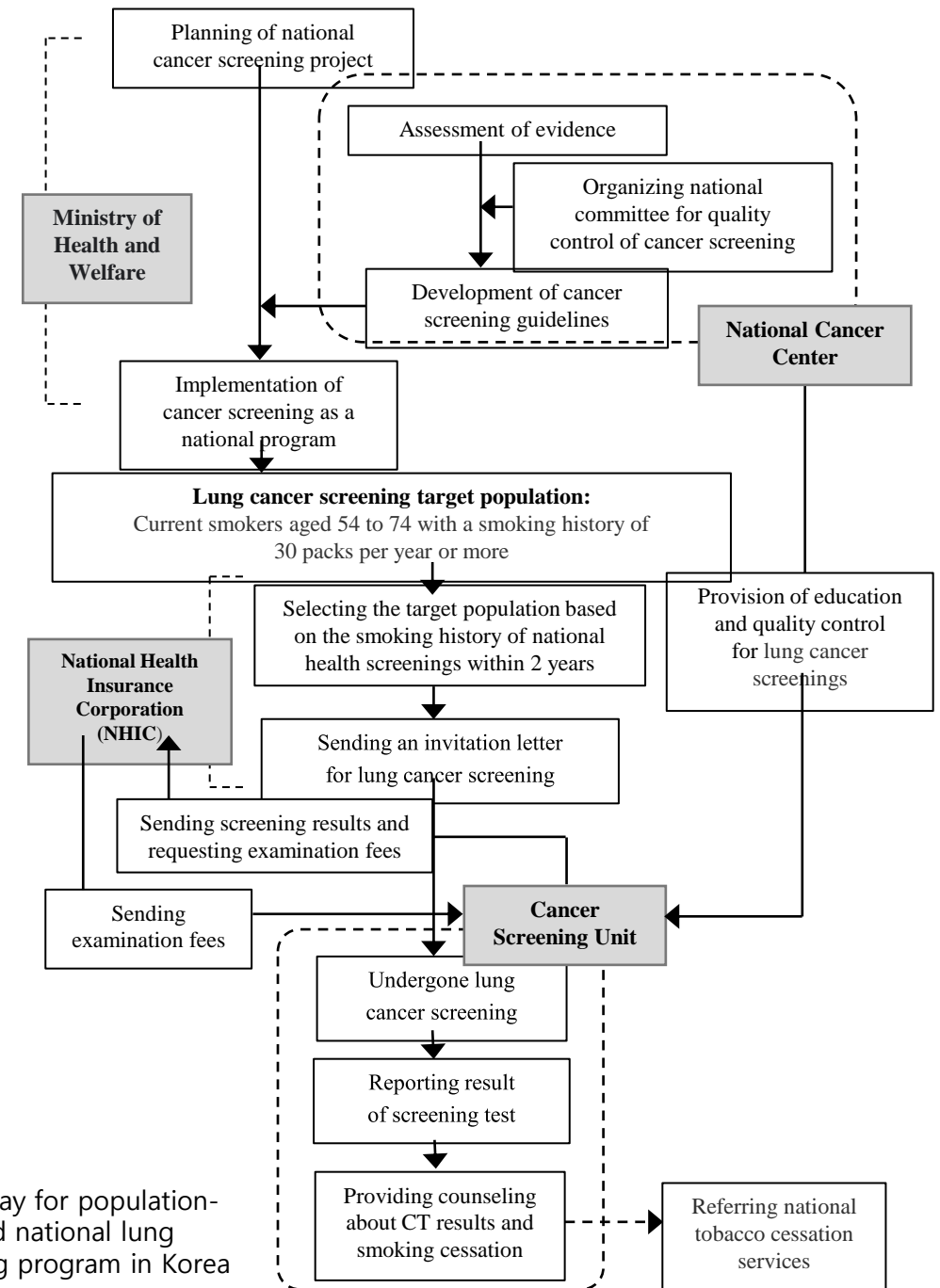


Figure 1. Pathway for population-based organized national lung cancer screening program in Korea

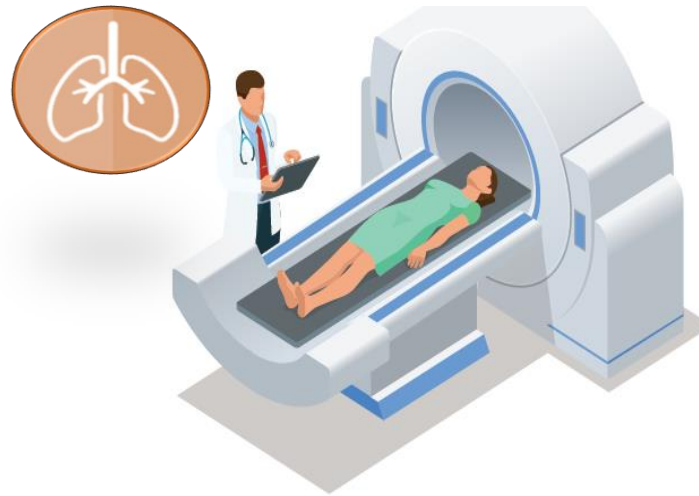
Results

- The participation rate gradually increased from 24.8% among 332,244 eligible targets in 2019, 25.9% in 2020, to 38.7% among 310,260 targets in 2021.
- The positive rates slightly decreased from 9.1% in 2019 to 8.7% in 2021. The variation in positive rates of screening units showed a tendency to decrease (in 2019, the 1st quartile was 4.2%, and the 3rd quartile was 12.7%; and in 2021, 4.6% and 11.0% respectively).
- The proportion of examinees who participated in post-counseling decreased from 46.3% in 2019 to 35.0% in 2021, and participation rate in smoking cessation treatment also decreased from 12.3% in 2019 to 6.3% in 2021 due to the COVID-19 pandemic.

Year	Lung cancer screening target	Participation	Participation Rate(%)	Positive Rates ± Variation	Smoking Cessation Counselling Rate(%)	Participation Rate(%) in Smoking Cessation Treatment
2019	332,244	82,018	24.8%	9.1±7.5	46.3%	12.3%
2020	359,212	92,659	25.9%	8.9±5.8	39.0%	8.8%
2021	310,260	120,138	38.7%	8.7±6.1	35.0%	6.3%

Conclusions

- National lung cancer screening program has been implemented successfully in Korea with controlling screening positive rates not so high.
- Controlling false negatives and strengthening post-screening management including smoking cessation counselling needs to improve.



Lung Cancer Screening by Low-dose CT

Summary

- The Korean government implemented a **National Lung Cancer Screening Program using low-dose computed tomography (LDCT) for high-risk smokers in 2019**
- The **participation rate gradually increased** from 24.8% in 2019 to 38.7% in 2021, however due to Covid-19 pandemic, Smoking Cessation Counselling Rate and the Participation Rate in Smoking Cessation Treatment has decreased
- The **positive rates slightly decreased** from 9.1% in 2019 to 8.7% in 2021
- **Reducing variability of screening positive rate and enhancing smoking cessation for screening participants** are needed to improve