

# **Budget impact analysis demonstrates NELSON screening model would save more than 18,000 premature lung cancer deaths**

August 8 2022

---



Credit: CC0 Public Domain

Lung cancer screening using low-dose computed tomography would prevent more than 18,000 premature lung cancer deaths at a cost of approximately €937 million if half of the eligible population were screened, according to a report presented at the International Association for the Study of Lung Cancer 2022 World Conference on Lung Cancer.

Lung [cancer](#) is the leading cause of cancer-related death, accounting for 1.8 million deaths worldwide and nearly 400,000 deaths in Europe in 2020. Volume computed tomography (CT) [screening](#) has the potential to address this heavy disease burden through [lung](#) cancer early detection, which then leads to a mortality reduction in high-risk populations. However, concerns about the economic implications of implementing nationwide lung cancer screening (LCS) programs persist.

Studies have indicated that LCS with low radiation dose volume CT is cost-effective in various European countries, yet there is little evidence demonstrating the financial consequences of implementing a screening program.

To address this, Xuanqi Pan, Institute for Diagnostic Accuracy, Netherlands and colleagues developed a budget impact model based on the [NELSON Study](#), and applied that to 28 European countries.

First reported at IASLC 2018 World Conference on Lung Cancer, The NELSON study was a population-based, controlled trial that enrolled 15,792 individuals, who were randomized 1:1 to either the study arm or control arm. Study arm participants were offered CT screenings at

baseline, one, three and five and one-half years after randomization. No screenings were offered to control arm participants. Participants' records were linked to national registries with 100 percent coverage regarding [cancer diagnosis](#) (Netherlands Cancer Registry), date of death (Centre for Genealogy) and cause of death (Statistics Netherlands). An [expert panel](#) reviewed 65 percent of cases. The follow-up period comprised a minimum of 10 years, unless deceased, for 93.7 percent of enrolled participants.

Dr. Pan and her team applied this model to demonstrate the financial and health-related consequences of implementing a national LCS program, for 28 European countries, compared to the current standard of care (no screening). The eligible population meeting NELSON inclusion criteria underwent LCS with volumetric nodule management according to the NELSON protocol. NELSON screening outcomes were used in the model.

The screening population would amount to nearly 21 million, resulting in 18,169 premature lung cancer deaths averted at a budget impact of 937.3 million Euros, assuming a 50% uptake rate in Europe. The cost per premature lung cancer [death](#) averted was 51,588 Euros, and the cost per screening participant was 45 Euros. The sensitivity analysis showed that the main influential parameters affecting the total budget impact were the unit costs for CT scan, stage I and stage IV treatment costs.

"Lung cancer screening in 28 European countries with volume-based low-dose CT would avert more than 18,000 premature [lung cancer](#) deaths, at a budget of approximately €937 million, if uptake of 50% in the eligible population could be achieved," Dr. Pan reported. "The implementation of LCS can provide substantive clinical benefits at a reasonable budget."

Provided by International Association for the Study of Lung Cancer

Citation: Budget impact analysis demonstrates NELSON screening model would save more than 18,000 premature lung cancer deaths (2022, August 8) retrieved 8 July 2024 from <https://medicalxpress.com/news/2022-08-impact-analysis-nelson-screening-premature.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.