

Smoking cessation and lung cancer: never too late to quit



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Although smoking rates in high-income countries have decreased since 2000, smoking remains a key modifiable risk factor for premature mortality and is the number-one risk factor for lung cancer. Continued smoking is associated with a substantially increased risk of all-cause mortality and tumour recurrence in patients with a diagnosis of lung cancer;¹ previous studies have shown improved recurrence-free and overall survival in former smokers with lung cancer compared with current smokers. A 2022 meta-analysis by Caini and colleagues² showed that quitting smoking at or around the time of lung-cancer diagnosis (ie, within 12 months) was associated with improved overall survival.

The analysis by Aline F Faers and colleagues³ in this issue of *The Lancet Public Health* is the first to look at the effects of duration of smoking cessation before a diagnosis of lung cancer on overall and non-small cell lung cancer (NSCLC)-specific survival across four continents (ie, Asia, Europe, North America, and South America). It highlights the benefits of stopping smoking, even in the year before diagnosis, and shows increasing benefit with longer durations of abstinence (particularly for people who quit more than 5 years before diagnosis). Their findings add to the evidence that quitting smoking is beneficial at any time. However, because the greatest gains in NSCLC-specific survival come with a longer duration of quitting, all health-care professionals should be reinforcing the benefits of smoking cessation in all patient interactions and effective, evidence-based, stop-smoking interventions should be available for all people who smoke and are willing to stop. Early intervention will maximise the duration from the timepoint that an individual quits smoking to the timepoint of a potential lung-cancer diagnosis and therefore maximise the benefits.

Faers and colleagues³ modelled the probability of being alive and the cumulative incidence of death from NSCLC at 5 years and at 10 years for a prototypical White, male patient with stage 1 lung adenocarcinoma who was younger than 65 years with less than 40 pack years of smoking history and being treated at the Mayo Clinic (Rochester, MI, USA). Their pooled data showed improved overall survival in ever smokers for women and people of Asian ethnicity. Such subgroup differences have been reported by other studies. For example, in

the small subsample of women included in the Dutch-Belgian lung-cancer screening trial (Nederlands-Leuvens Longkanker Screenings Onderzoek) the effects of screening on lung-cancer mortality were consistently more favourable than in men.⁴ Data on people with lung cancer from the Cancer Registry of Norway also showed that men had an increased risk of excess death at 5 years compared with women irrespective of stage, age, length of time since diagnosis, and histological subgroup.⁵ Ou and colleagues⁶ showed that Asian ethnicity was an independent, favourable prognostic factor for overall survival in NSCLC regardless of smoking status. More work is needed to better understand the benefits of smoking cessation in these different subgroups, specifically why there are differences by sex and ethnicity. This is particularly important when considering adapting smoking-cessation interventions and messaging to different groups.

Lung-cancer screening is a key strategy in reducing lung-cancer mortality through early diagnosis and effective treatment. Faers and colleagues³ interpret their findings in the context of lung-cancer screening programmes because mortality from NSCLC is reduced after 1 year of smoking cessation and show that overall survival is probably improved after smoking cessation if a lung cancer is detected at subsequent incident screening rounds. Findings from their study should therefore be used to instigate positive action from the commissioners of lung-cancer screening programmes as nations progress with consideration of and plans to implement lung-cancer screening programmes; decisions should be made on the delivery and funding for smoking-cessation interventions. Attendance at lung-cancer screening is a so-called teachable moment whereby people who smoke might be more receptive to an offer of support to stop smoking.⁷ A 2023 systematic review showed that stop-smoking interventions delivered within lung-cancer screening settings are effective, with the strongest evidence for high-intensity intervention,⁸ and modelling has shown that embedding stop-smoking support for individuals who smoke and attend lung-cancer screening can decrease deaths by 14% and increase overall life-years by 81%.⁹ These findings should also be incorporated into public health messaging, counteracting the often fatalistic

views of smokers that the damage is already done and that there is no benefit to quitting smoking or attending lung-cancer screening.¹⁰ The message from the evidence is clear—no time is too late to quit smoking.

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