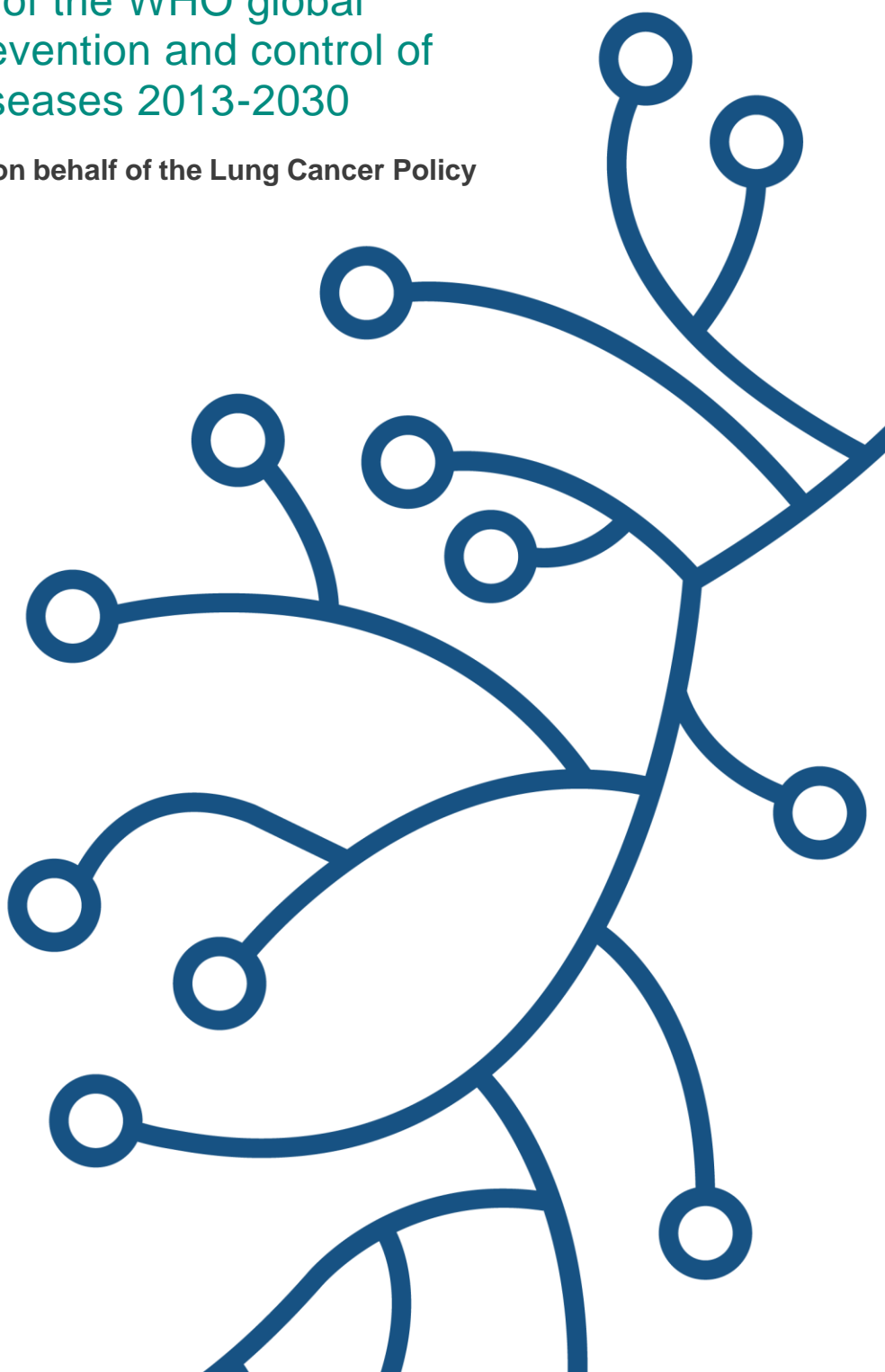# Consultation response:
Lung Cancer Policy Network

Updating Appendix 3 of the WHO global action plan for the prevention and control of noncommunicable diseases 2013-2030

The Health Policy Partnership on behalf of the Lung Cancer Policy Network

25 August 2022

Contents

1 About the Lung Cancer Policy Network

The Lung Cancer Policy Network is a global, multistakeholder network of over 50 lung cancer experts. It was launched by the Lung Ambition Alliance (LAA), a global coalition that was set up to eliminate lung cancer as a cause of death around the world (founded by the International Association for the Study of Lung Cancer, Global Lung Cancer Coalition, AstraZeneca and Guardant Health).

The aim of the Network is to create a lasting, international alliance of multidisciplinary stakeholders engaged in making lung cancer a policy priority worldwide, helping to drive meaningful change for people with lung cancer.

2 Network responses to specific WHO best buy objectives and interventions

The Network recognises the success of the WHO Best Buys and the evidence-based resources that the global action plan for the prevention and control of noncommunicable diseases provides, particularly in steering investment in specific areas of public health. However, there is clear scope for the WHO to support significant progress at a global level in addressing the burden on lung cancer, which is a key contributor to mortality in non-communicable diseases. This could be achieved by expanding recommendations across objectives 3 and 4 to include lung cancer.

Network responses specifically reference WHO Best Buys intervention numbers (e.g. CA2) throughout.

The Network suggest that the following be considered for inclusion.

1. Stronger emphasis on Member States that are not Parties to the WHO Framework Convention on Tobacco Control (FCTC) to implement the FCTC measures, to support the prevention of tobacco use, and thus reduce the related risk of lung cancer.

2. Ensuring that mass media campaigns about tobacco and smoking cessation include recognition of the residual risk for those who have stopped smoking and identify this group as a population that are particularly high-risk and should therefore be targeted for lung cancer screening via LDCT. These campaigns should however avoid framing lung cancer as a 'smoker's disease' thereby causing further stigmatization but rather identify these individuals as a high risk group.

3. A stronger call for action via coordinated prevention strategies to reduce the initiation of tobacco.

4. Ensuring that mass media campaigns to educate the public about the harms of smoking/second hand smoke incorporate messaging that raises awareness of the risks of air pollution as a risk-factor for lung cancer specifically.

5. Including risk reduction for lung cancer in the rationale for intervention CR6, (ensuring access to improved stoves and cleaner fuels to reduce indoor air pollution).

6. Expanding intervention CR7 to include a recommendation for the screening of populations at high risk of lung cancer due to occupational exposure.

7. Inclusion of targeted screening for lung cancer using low-dose CT as a specific intervention, bringing lung cancer in-line with the screening recommendations which are included for cervical cancer (CA2), breast cancer (CA5), oral cancer (CA9), and colorectal cancer (CA10).

8. Explicit inclusion of lung cancer screening and early diagnosis alongside primary prevention, with a tiered approach to screening and early-referral mechanisms reflecting the available infrastructure of different locations

2.1 Responses to Objective 3: to reduce modifiable risk factors for noncommunicable diseases and underlying social determinants through creation of health-promoting environments

2.1.1 Tobacco use

The Network supports the strengthening of the WHO Framework Convention on Tobacco Control (FCTC) and related guidelines. We would suggest stronger urging for Member States that are not Parties to the WHO FCTC to implement the measures in order to support primary prevention of tobacco use, and in turn, to work towards a tobacco-free generation.

At the same time, all campaigns should avoid framing lung cancer as a 'smoker's disease' thereby exacerbating existing inequalities and causing further stigmatization. Rather we would suggest that such campaigns identify these individuals as a high risk group.

2.1.1.1 Specific interventions with WHO-CHOICE analysis: Tobacco use

Even though smoking rates are gradually declining,[1] people who used to smoke remain at high risk of lung cancer for many years after quitting [2] . In addition, environmental factors such as air pollution are a growing cause of lung cancer in the entire population [3] with 10%-25% of all lung cancer cases worldwide diagnosed in

people who have never smoked [4]. As such, the incidence and mortality rates of lung cancer are expected to continue to remain high for years to come.

The Network particularly supports interventions T4 and T5.

- T4: eliminate exposure to second-hand smoke in all indoor workplaces, public places, public transport
- T5: implementation effective mass media campaigns that educate the public about the harms of smoking/second hand smoke

We suggest further strengthening these by,

- T5: Ensuring that mass media campaigns include recognition of the residual risk for those who have stopped smoking and identify this group as a population that are particularly high-risk and should therefore be targeted for lung cancer screening via LDCT.
- T5: Supporting a stronger call for action to reduce the initiation of tobacco use at all via coordinated prevention strategies.
- T4/T5: Ensuring that mass media campaigns that aim to educate the public about the harms of smoking/second hand smoke incorporate messaging that raises awareness of the risks of air pollution as a risk-factor for lung cancer specifically.

2.2 Responses to Objective 4: To strengthen and orient health systems to address the prevention and control of noncommunicable diseases and the underlying social determinants through people-centred primary health and universal health coverage

2.2.1 Chronic respiratory diseases

We note that the prevention of occupational lung diseases is included as an intervention is this section. However, there is no specific mention of lung cancer as part of this groups of diseases, and this intervention is not reflected in the section specifically on cancer. We would also like to emphasise the potential benefits of LDCT screening beyond detection of lung cancer: LDCT screening could provide an opportunity to detect other non-communicable diseases at an early stage, such as cardiovascular and chronic obstructive pulmonary disease. [5][6]

2.2.1.1 Specific interventions with WHO guidance: Chronic respiratory disease

- CR6: Access to improved stoves and cleaner fuels to reduce indoor air pollution.

The Network particularly supports this and **suggest that this intervention be linked explicitly to cancer prevention.** In many countries, other risk factors such as radon gas, arsenic in groundwater, outdoor and indoor air pollution from wood smoke used as an energy source contribute to increased risk of lung cancer.[7][8] Thus, even with optimal tobacco control and smoking cessation policies and implementation, the burden of lung cancer will remain significant due to the prevalence of other risk factors.[9]

- CR7: Cost-effective intervention to prevent occupational lung diseases from example, from exposure to silica, asbestos.

The Network suggest this intervention be explicitly linked to lung cancer as while tobacco use and older age remain the major and best-documented risk factors for lung cancer,[18] other risk factors include air pollution and exposure to occupation-related carcinogens.[19] Whilst prevention is key it should be recognised that much of this occupational exposure is ongoing/already been experienced by people, so we would suggest that **for specific populations targeted lung cancer screening should be offered to compliment prevention.**

Several studies have demonstrated the benefits of targeted LDCT screening for people with previous occupational exposure to asbestos.[20-22] Furthermore, given the rising prevalence of lung cancer among people who never smoked,[10][23][24] many countries are actively investigating how to approach LDCT screening in this population, as they may be at high risk of developing lung cancer owing to other risk factors[3][25][26] An example of one such approach is provided in the case study below.

Case study taken from the Lung cancer screening: learning from implementation report

Addressing increased risk for lung cancer in tin miners due to occupational exposure

Yunnan province in China has the largest tin mining industry in the world.[14] Since the 1970s, studies targeted a population of tin miners in Geiju city for lung cancer screening using chest X-ray and sputum testing.[14][15] At the time, this population had the highest rates of male lung cancer mortality in the country.[16] In 2014, the same population was targeted as part of the Lung Cancer Screening Program in Rural China (LungSPRC), a government sponsored national LDCT screening programme.[15] Both men and women were invited for annual LDCT screening if they had a history of working in the mining industry; smoking history and age were also considered. The programme found that tin miners had high levels of lung cancer compared with those who did not work in mining. After five years of screening, the proportion of participants diagnosed with stage I lung cancer increased from 37.5% to 75%.[15] A similar programme also targeted rural populations exposed to occupational carcinogens at the Dagang oil field (Tianjin) for LDCT screening.[17]

2.2.2 Cancer

The Network suggests that screening for lung cancer as well as early detection and referral mechanisms be included specifically as interventions within objective 3.

Lung cancer screening and improved early detection are not listed as specific interventions or enabling actions to realise objective 3. This is despite a wealth of evidence supporting the benefits of screening and early detection for lung cancer and clear data about the considerable burden that lung cancer confers on public health around the globe.

Lung cancer is the leading cause of cancer deaths worldwide. More than 2.2 million people were diagnosed with lung cancer in 2020, making it the second most commonly diagnosed cancer worldwide after breast cancer.[27] Approximately one in five cancer deaths globally is due to lung cancer,[28] and the five-year survival rate was just 10–20% in most countries between 2010-2014.[29]

As part of their commitment to reducing mortality from NCDs, many countries around the world have set targets to specifically achieve 10-year survival in three out of four of cancer patients by 2030. [30] [31] However, less than 10% of countries are on track to achieving target reductions in the major NCDs,[32] which include cancer, and only 12 countries worldwide are currently on track to achieving specific targets to reduce cancer mortality.[28]

As lung cancer is the biggest cancer killer, strategies to reduce lung cancer mortality must be part of efforts to achieve those targets.[28] The most effective way to do this is through early detection, specifically screening. As such, there is a real opportunity for WHO Best Buys to provide suggested actions within objective 3 that would progress these targets.

2.2.2.1 Targeted screening for high risk populations using low-dose CT

The Network calls for lung cancer screening via low-dose CT to be included as a specific intervention in-line with the screening recommendations which are included for cervical cancer (CA2), breast cancer (CA5), oral cancer (CA9), and colorectal cancer (CA10).

It is recommended that screening for lung cancer take a targeted approach, focusing on people at highest risk of lung cancer. In 2020, the publication of the Dutch–Belgian Randomised Lung Cancer Screening Trial (NELSON) confirmed the findings of the US National Lung Screening Trial (NLST) more than a decade before, that targeted screening of former and current smokers by low-dose computed tomography (LDCT) can significantly reduce deaths from lung cancer [33] [5]

These findings build on evidence from many other RCTs that have reported results since 2019, such as the LUSI, MILD and UKLS trials [34] [35] [36].*The Lancet Regional Health - Europe* published a meta-analysis of nine RCTs and concluded the evidence of a potential mortality benefit from LDCT lung cancer screening is robust. [37] Given that lung cancer currently kills approximately 1.8 million people worldwide every year,[38] this impact would be considerable.

There is strong evidence that the benefits of lung cancer screening demonstrably outweigh potential harms. High-quality LDCT screening shows a negligible risk from radiation exposure and the false-positive and over-diagnosis rates are similar to screening mammography.[39] [40] Initially proposed to target high-risk populations, LDCT screening holds the potential to be expanded as screening eligibility criteria continue to be refined through risk modelling (e.g. to account for the growing number of lung cancer cases in never smokers).[26] [33]

Several studies around the world have demonstrated that targeted lung cancer screening using LDCT is cost-effective. See *Appendix 1* in the hyperlinked report, [Lung cancer screening: the cost of inaction]*,* for a synthesis of published cost-effectiveness analyses of LDCT screening. When compared with other established screening programmes (i.e. breast and colorectal), fewer people need to be screened for lung cancer to prevent one cancer death. [41] [42] [43] [44] As we have seen the US,[45] if eligibility criteria thresholds are reduced, more people at high risk of lung cancer could benefit from lung cancer screening. Furthermore, early detection via screening is likely to be increasingly cost effective as the cost of potential treatments for late stage disease are expected to continue to rise.[46]

In this response we have used the most recent data available (2020). While it is possible that this number is underestimated due to under-reporting of cases during the COVID-19 pandemic, figures for 2020 are as expected based on current epidemiological trends, and comparable to data from earlier years.

2.2.2.2 Ensuring earlier detection of lung cancer where targeted screening for high risk populations using low-dose CT is not currently feasible

The Network recommend that that specific interventions that support early detection of lung cancer and identification of high-risk populations are included in the objective 3 interventions for cancer. These could emulate those already included for childhood, head and neck cancers, and prostate cancer which focus on early diagnosis programmes (CA11/CA12,CA13).

Whilst the evidence is clear that screening high-risk individuals using low-dose computed tomography (CT) scans offers a safe and effective way to shift diagnosis to earlier stages and reduce mortality from lung cancer this is not feasible in all locations, particularly in lower and middle income countries (LMIC).[7] As such, complementary approaches, such as incidental pulmonary nodule identification, management

protocols and rapid referral pathways from primary to secondary care, will be key to improving early detection. [7] [47-49]

Specific challenges in cancer control faced by many LMIC include fragmented and underfinanced public health systems, lack of awareness of lung cancer symptoms, and poorly developed cancer registries.[7] [50-52] Particular challenges in implementing LDCT screening for lung cancer are often a lack of resources and available LDCT scanners, as well as a lack of specific data and local studies.

Viable options to increase the early detection of lung cancer outside of organised screening programme include utilising chest x-ray and AI, rapid referral pathways, and incidental nodule detection, as well as building prevention and symptom awareness campaigns across populations.

A WHO Best Buys intervention that specifically highlighted the use of a tired approach to screening and early detection and referral mechanisms that reflected the available infrastructure of different locations has the potential to support countries to address the burden of lung cancer at the same time as building capacity and infrastructure to move towards screening implementation.

3 Supporting Materials

3.1 Policy reports on the implementation of targeted lung cancer screening

We would like to highlight the report, Lung cancer screening: the cost of inaction, developed for the Lung Ambition Alliance and published in July 2021. This report is a comprehensive review of the clinical and cost effectiveness evidence for lung cancer screening in targeted populations using low-dose CT scans. It highlights the potential of lung cancer screening to improve patient outcomes while also reducing the cost burden on healthcare systems.

We would also like to draw attention the recently published Lung cancer screening: lessons from implementation report, developed by the Lung Cancer Policy Network and published in August 2022. This report showcases the wealth of existing research on low-dose computed tomography (LDCT) screening for lung cancer, and includes 15 case studies from around the world that demonstrate the success of screening implementation programmes. It is co-authored by over 40 world-renowned experts in lung cancer.

3.2 Lung Cancer Policy Network members

Network membership as of August 2022.

	Name	Country	Affiliation
Europe	Jan van Meerbeck	Belgium	University of Antwerp
	Annemiek Snoeckx	Belgium	Antwerp University Hospital (UZA)
	Ante Marušić	Croatia	University Hospital Centre Zagreb
	Miroslav Samaržija	Croatia	University of Zagreb
	Oluf Dimitri Røe	Denmark	Aalborg University Hospital
	Sébastien Couraud	France	Lyon Sud Hospital
	Olivier Leleu	France	Centre Hospitalier d'Abbeville
	Hans-Ulrich Kauczor	Germany	University Hospital Heidelberg
	Anne-Marie Baird	Ireland	Lung Cancer Europe (LuCE)
	Ugo Pastorino	Italy	Istituto Nazionale Tumori
	Giorgio Scagliotti	Italy	University of Turin
	Stefania Vallone	Italy	Women Against Lung Cancer in Europe (WALCE)
	Giulia Veronesi	Italy	Vita-Salute San Raffaele University
	Matthjis Oudkerk	Netherlands	University of Groningen
	Mariusz Adamek	Poland	Medical University of Silesia
	Witold Rzyman	Poland	Medical University of Gdańsk
	Ewelina Szmytke	Poland	LuCE
	Edyta Szurowska	Poland	Medical University of Gdańsk
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	Ebba Hallersjö Hult	Sweden	Vision Zero Cancer
	David Baldwin	UK	University of Nottingham
	John Field	UK	University of Liverpool

	Jesme Fox	UK	Roy Castle Lung Cancer Foundation
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	David CL Lam	Hong Kong	University of Hong Kong
	Chunxue Bai	China	Chinese Alliance Against Lung Cancer
	Dawei Yang	China	Chinese Alliance Against Lung Cancer
	Pan-Chyr Yang	Taiwan	National Taiwan University
	Sue Crengle	New Zealand	University of Otago
North America	Stephen Lam	Canada	University of British Colombia
	Carolyn (Bo) Aldigé	US	Prevent Cancer Global Lung Cancer Coalition
	Andrea Borondy Kitts	US	Rescue Lung Society
	Angela Criswell	US	GO2 Foundation
	Joelle Fathi	US	GO2 Foundation
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3.3 Contact

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