LUCIA

LUng Cancer-related risk factors and their Impact Assessment

LUCIA Workshop

Understanding Lung Cancer

September 5th 2023

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Funded by the European Union

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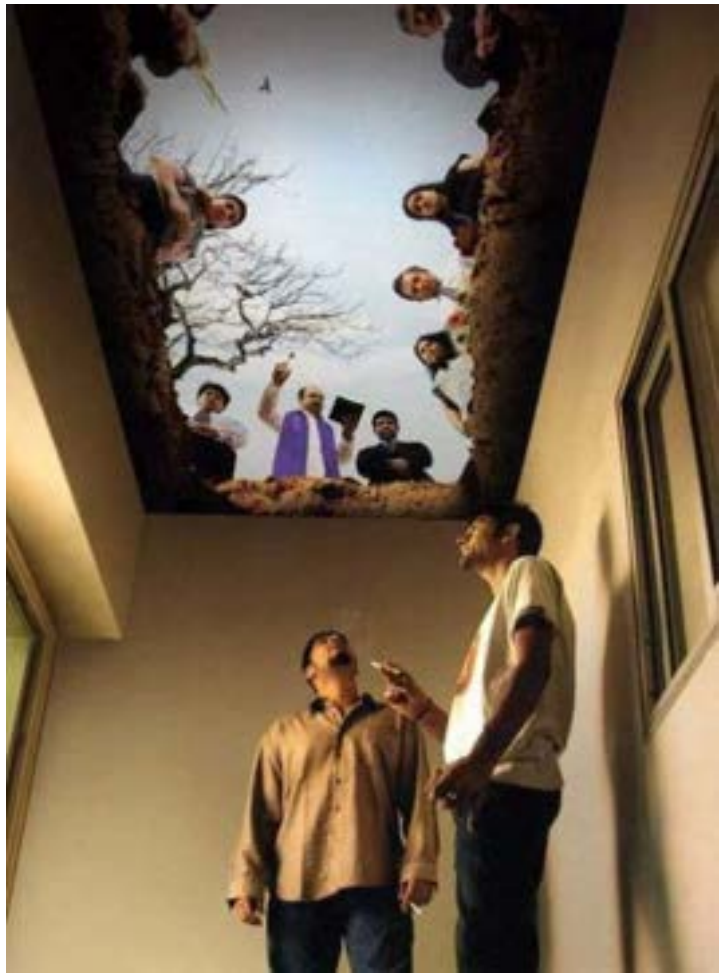
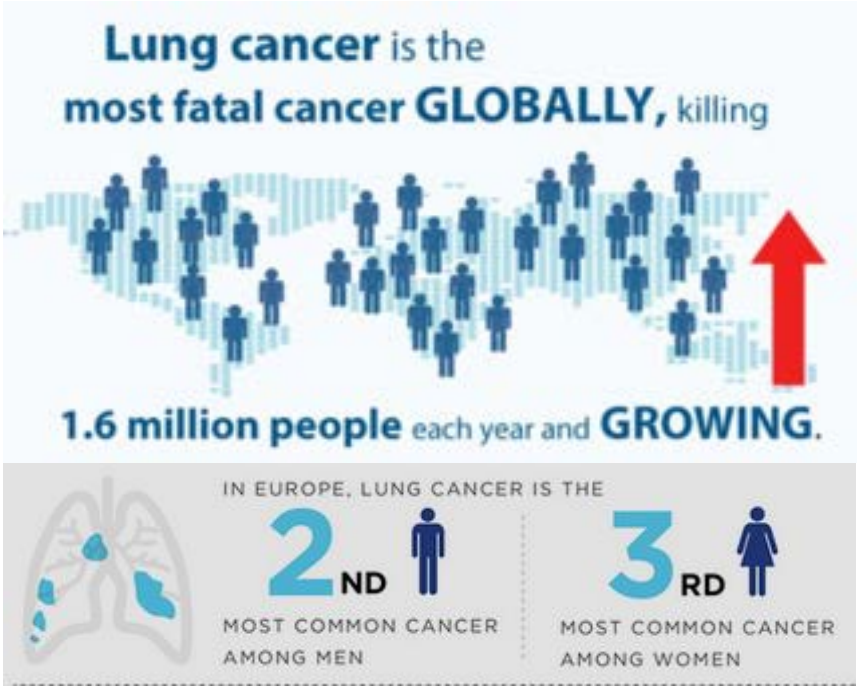
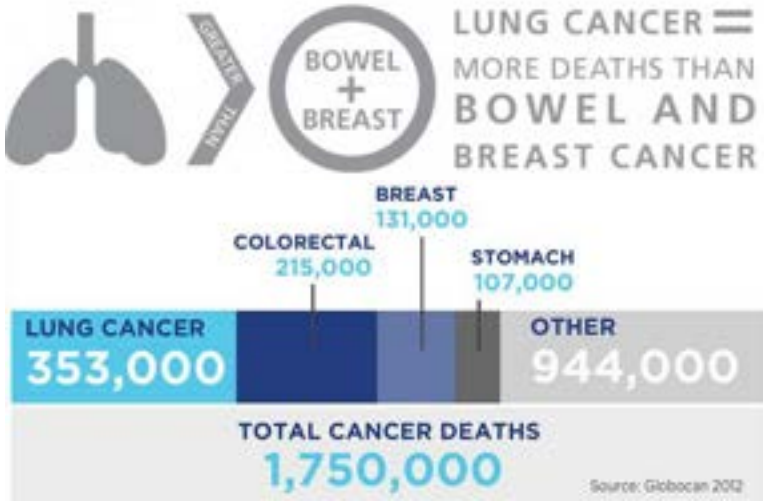






Lung cancer on track to ⬆38% to 2.89 million cases by 2030

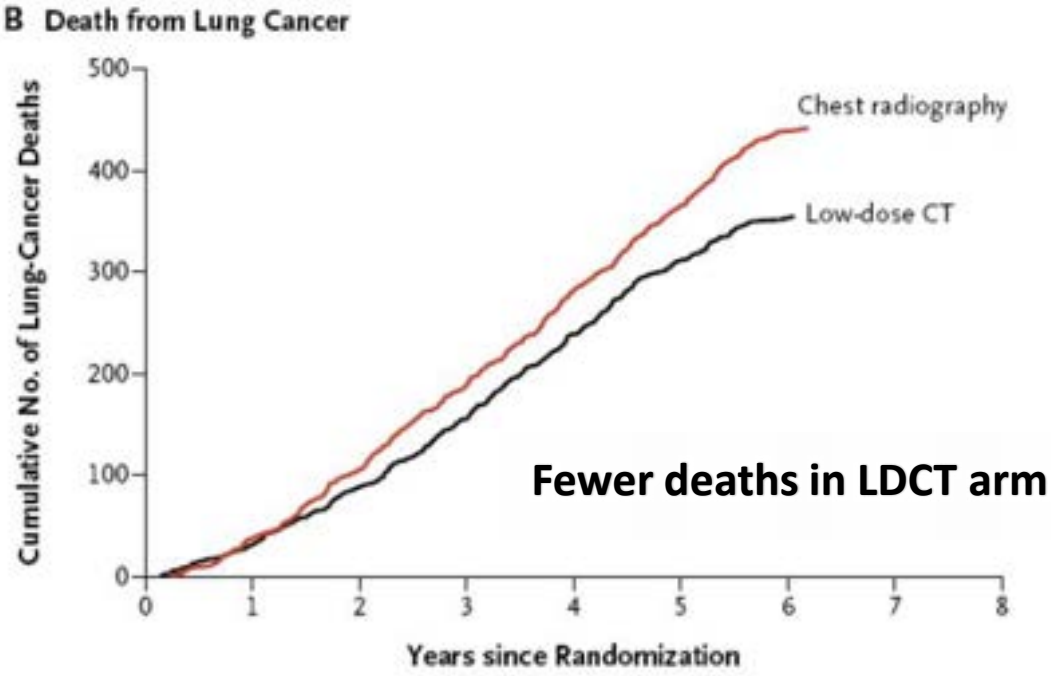

RISK
FACTOR


Radiation
(e.g. X-rays)
Ageing
(senescence)
Pollution
(e.g. smog)
Environment
(radon gas)
Diseases
(e.g. COPD)
Genetics
(family history)
Occupation
(e.g. miners)
Asbestos
(silicates)
Tobacco
(smoking)
Smoke
(second hand)


FIGHTING
CANCER

Only 15%

of patients are diagnosed at an early stage



Fewer deaths in LDCT arm

Reduced Lung-Cancer Mortality with Low-Dose Computed Tomographic Screening

The National Lung Screening Trial Research Team*

NEJM 2011

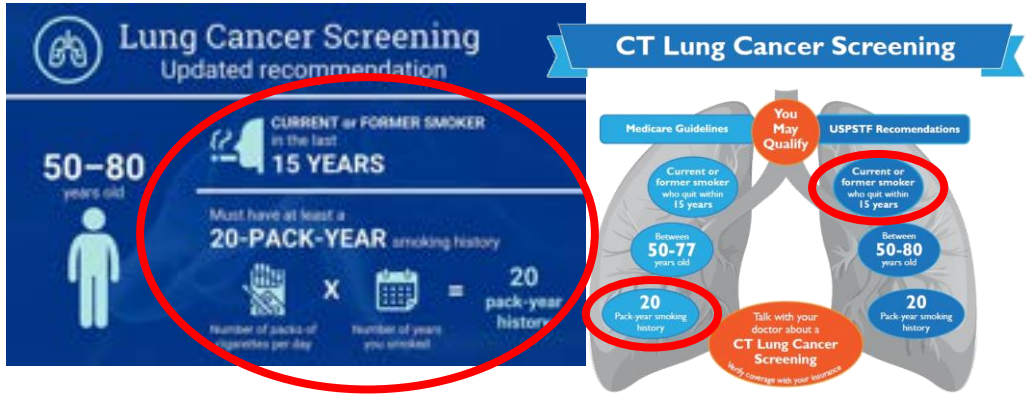
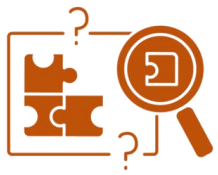


Table 2. Comparison of Lung Cancer Screening Guidelines.

Organization	Screening Recommendation	Screening Interval	Eligibility Criteria	Countries That Have Adopted the Guideline
United States Preventive Services Task Force (USPSTF)	LDCT	Annually	Age 50-80 years, ≥20 pack-year smoking history, currently smoke or have quit within the past 15 years	United States
National Comprehensive Cancer Network (NCCN)	LDCT	Annually	Age 50-80 years, ≥20 pack-year smoking history, currently smoke or have quit within the past 15 years	United States
American Cancer Society (ACS)	LDCT	Annually	Age 50-80 years, ≥20 pack-year smoking history, currently smoke or have quit within the past 15 years	United States
European Society for Medical Oncology (ESMO)	LDCT, chest X-rays, or sputum cytology	Annually or biennially (varies by country)	Age 50-75, 20 pack-year smoking history, current smokers or those who quit within the past 10 years	Various European countries (e.g., The Netherlands, Germany, Italy)
International Association for the Study of Lung Cancer (IASLC)	LDCT	Annually or biennially (varies by country)	Age 50-80, 20 pack-year smoking history, current smokers or those who quit within the past 15 years	Various countries worldwide (e.g., Canada, Australia, Japan, South Korea)

More than 50% of **new lung cancers** diagnosed today are in either **ex-smokers or never-smokers**



Council of the European Union

Brussels, 29 November 2022
(OR. en)

14779/22

Interinstitutional File:
2022/0290(NLE)

SAN 608

NOTE

From:	General Secretariat of the Council
To:	Council
Subject:	Council Recommendation on strengthening prevention through early detection: A new EU approach on cancer screening replacing Council Recommendation 2003/878/EC - Adoption

Lung cancer:

Considering the preliminary evidence for screening with use of low dose computed tomography, and the need for a stepwise approach, countries should explore the feasibility and effectiveness of this programme, for instance by using implementation studies. The programme should integrate primary and secondary prevention approaches, starting with high risk individuals. Special attention should be given to the identification and targeting of high risk profiles, starting with heavy smokers and ex-smokers who used to smoke heavily, and Member States should further research how to reach and invite the target group, as there is no systematic data (documentation) on smoking behaviour. Furthermore, attention should be given to the identification and targeting of other high risk profiles.

Building on the most recent evidence and methods, the recommendation extends organised screening to three additional cancers:

- **Lung cancer** testing for current heavy and ex-smokers aged 50-75.
- **Prostate cancer** testing in men up to 70 on the basis of prostate specific antigen testing, and magnetic resonance imaging (MRI) scanning as follow-up.
- Screening for Helicobacter pylori and surveillance of precancerous stomach lesions in places with **high gastric cancer incidence and death rates.**

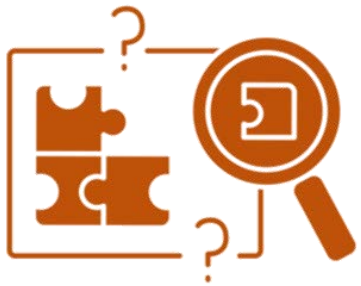
Economic **evaluations support cost-effectiveness of LDCT screening,** especially when combined with **smoking cessation interventions**

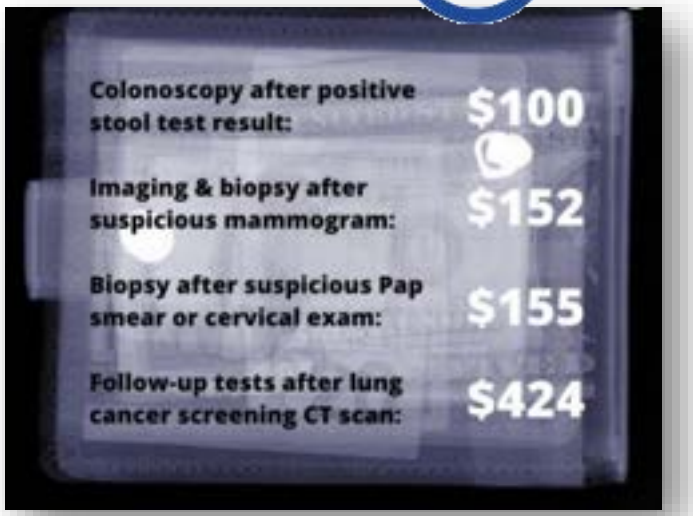
THE LANCET
Oncology

Participant selection for lung cancer screening by risk modelling (the Pan-Canadian Early Detection of Lung Cancer [PanCan] study): a single-arm, prospective study

Lancet Oncol. 2017 Nov;18(11):1523-1531

Screening Result	Low-dose Helical CT		
	Screen 1 N (%)	Round 2 N (%)	Round 3 N (%)
Total Positives	7,193 (100)	6,902 (100)	4,054 (100)
Lung cancer	270 (4)	168 (2)	211 (5)
No lung cancer	6,923 (96)	6,734 (98)	3,843 (95)





Neglectable benefit of searching for incidental findings in the Dutch–Belgian lung cancer screening trial (NELSON) using low-dose multidetector CT

Eur Radiol (2007) 17: 1474–1482

75% of participants at **least 1 IF**
Only **8.5%** possibly **clinically relevant**

7% of patients with false positive have **invasive procedure**