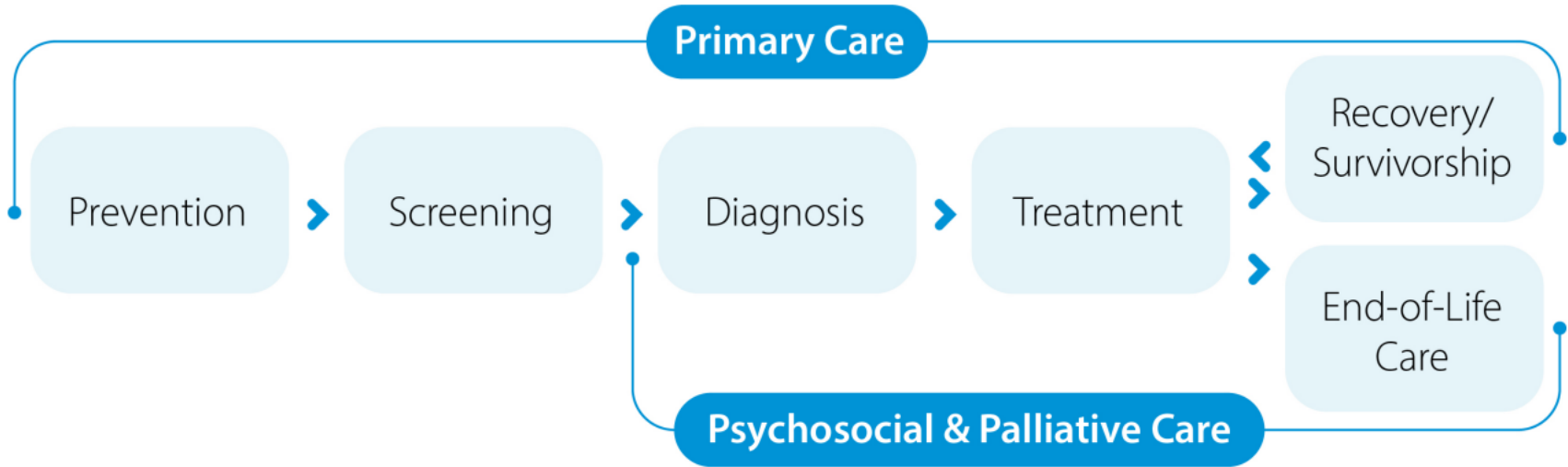


Lung Cancer: Screening, Diagnostics and Referrals

Lisa Prior, Consultant Medical Oncologist
GP Study Day
January 20th 2024



Primary Care and Lung Cancer



Lung Cancer in Ireland



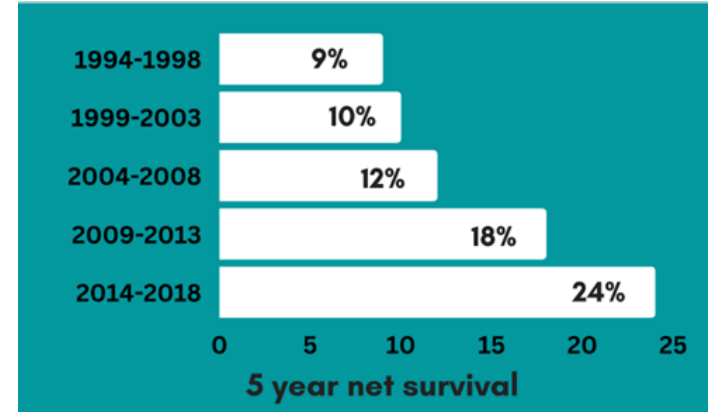
2,693 new cases per year (2017-2019)



Ranking 3rd among most common cancers



1,894 lung cancer deaths per year (2017-2019)

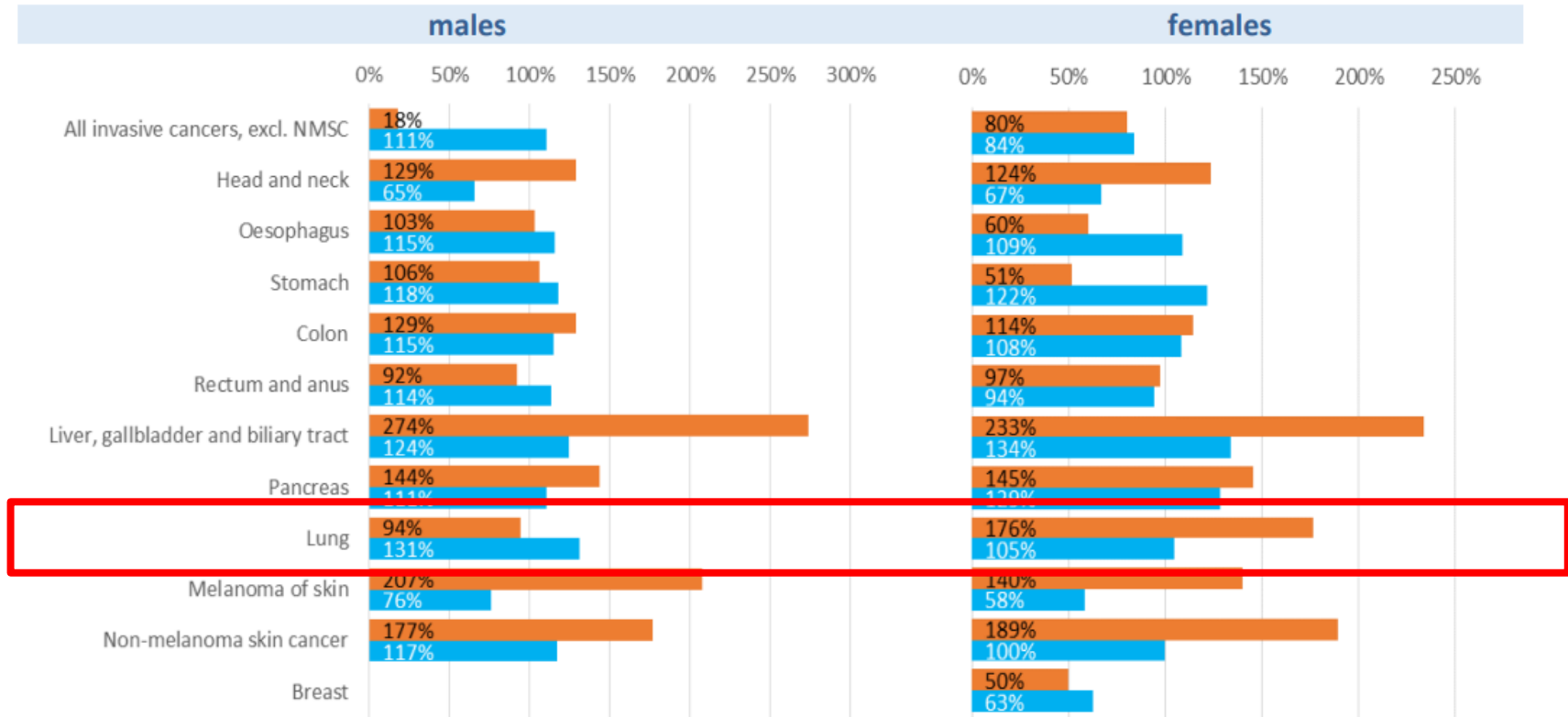


Ranking 1st among most common invasive cancer deaths



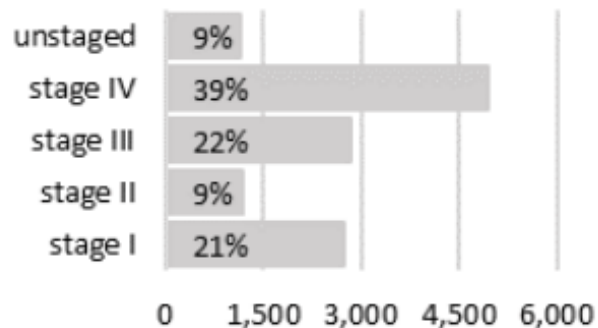
Makes up 20.5% of all cancer deaths

Projection For Lung Cancer Incidence 2020-2045

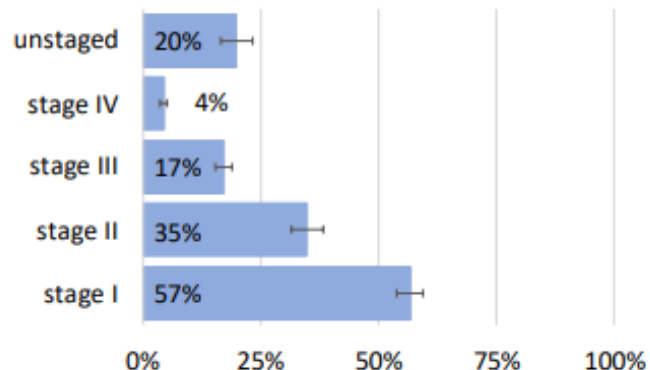


Stage At Diagnosis Matters!

cases diagnosed 2014-2018 and percent by stage at diagnosis



5-year net survival & 95%CI, by stage



Low Dose CT Thorax As Lung Cancer Screening Tool...



The Evidence For LDCT in Lung Cancer Screening

Trial (country)	Control arm	CT schedule (years)								N exp. N cont.	Age		Tobacco	Other	Nodule interpretation model	Follow-up	Result Lung cancer mortality (Overall mortality)	Ref.
		0	1	2	3	4	5	6	7		8	On						
DEPISCAN 	CXR									385 380	50	75	>15cig/d > 20y Form. <15y		NELSON like	<2y	Not reported	Bianchon T et al. Lung Cancer. 2007;58(1):50-8.
LSS 	CXR									1660 1658	55	74	>30 PY Form. <10y		NLST >4mm	5.2y	1.24 [0.74-2.08] (1.20 [0.94-1.54])	Doroudi M et al. JNCI Cancer Spectr. 2018; 2(3): pky042.
NLST 	CXR									26722 26732	55	74	>30 PY Form. <15y		NLST >4mm	6.5y	0.8 [0.73-0.93] (0.93 [0.86-0.99])	National Lung Screening Trial Research Team, N Engl J Med. 2011;365(5):395-409.
DANTE 	CXR baseline then observ.									1264 1186	60	75		Male only	NLST (≥10mm)	8y	Pooled with MILD 0.83 [0.61-1.12] (0.89 [0.74-1.06])	Infante M et al. Eur J Cancer Prev. 2017;26(4):324-329.
MILD 	Observ.									2376 1723	50	75				10y	0.61 [0.39-0.95] (0.8 [0.62-1.03])	Pastorino U et al. Ann Oncol. 2019;30(7):1162-1169
DLCST* 	Observ.									2052 2052	50	70	> 20PY Form. <10y	FEV1 > 30%		5y	1.03 [0.66-1.6] (1.02 [0.82-1.27])	Saghir Z et al. Thorax. 2012;67(4):296-301.
ITALUNG* 	Observ.									1613 1593	55	70			NELSON like	10y	0.70 [0.47-1.03] (0.83 [0.67-1.03])	Paci F et al. Thorax. 2017;72(9):825-831.
LUSI* 	Observ.									2029 2023	50	70	>15cig/d > 25y OR >10cig/d > 30y Form. <10y			8.8y	M: 0.94 [0.54-1.61] F: 0.31 [0.10-0.96]	Becker Niet al. Int J Cancer. 2020;146(6):1503-1513
NELSON* 	Observ.							optional		7907 7915	50	75				11y	M: 0.76 [0.61-0.94] F: 0.67 [0.38-1.14] (M: 1.01 [0.92-1.11])	De Koning HJ et al. N Engl J Med. 2020;382(6):503-513
UKLS 	Observ.									1987 1981	50	75	-	LLPv2 > 4.5%		7.3	0.65 [0.41-1.02]	Field JK et al. Lancet Reg Health Eur. 2021

Lung Cancer Screening Leads to Reduced Mortality...

NLST

- 53,454 patients in US
- LDCT vs CXR
- Screening at year 1, 2, 3
- 55 – 74 years
- ≥ 30 pack years smoking
- Current/former smoker (≤ 15 yr)

- Scan positivity rate 24.2%
- 1% cancer detection (57% early stage)

- **20% ↓ lung cancer mortality**
- **6.7% ↓ all cause mortality**

Nelson

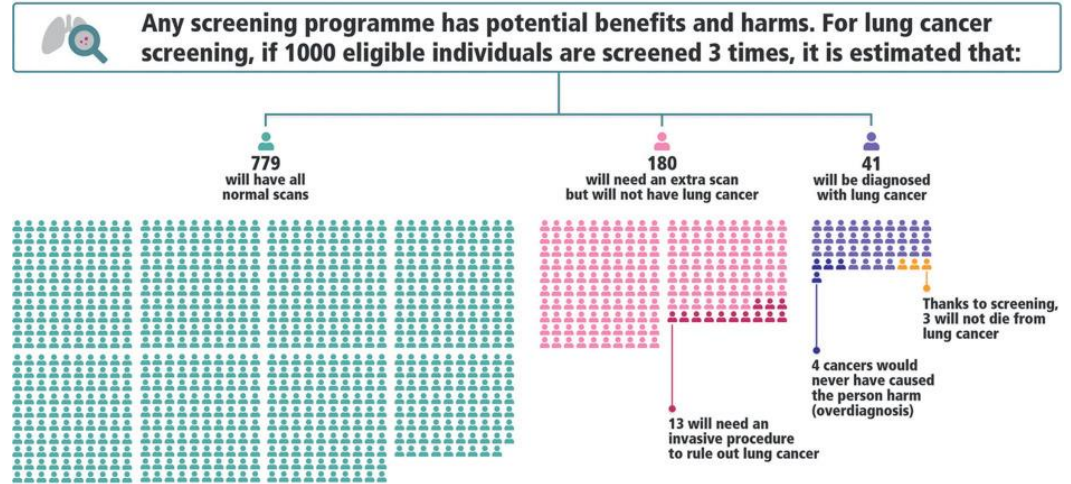
- 15,789 patients in Netherlands/Belgium
- LDCT vs no screening
- Screening at year 1, 3, 5.5
- 50 – 74 years
- ≥ 15 pack years smoking
- Current/former smoker (≤ 10 yr)

- Scan positivity rate 6%
- 0.9% cancer detection (70% early stage)

- **24% ↓ lung cancer mortality (33% in females)**
- **Not powered to show change in all cause mortality**

Potential Harms of Screening and Concerns

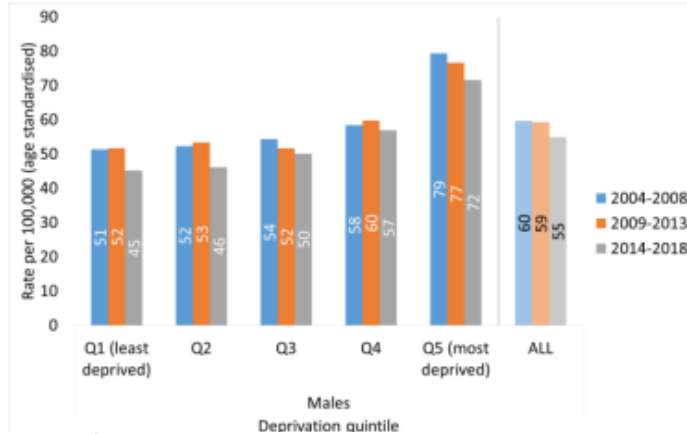
- False positives
- Incidental findings
- Overdiagnosis
- Radiation exposure
- Patient distress
- Cost effectiveness
- Lack of participation/barriers to access



Robbins et al, Lancet Respiratory Medicine, 2019

The Impact of Social Deprivation on Lung Ca Incidence & Mortality

Males



Females

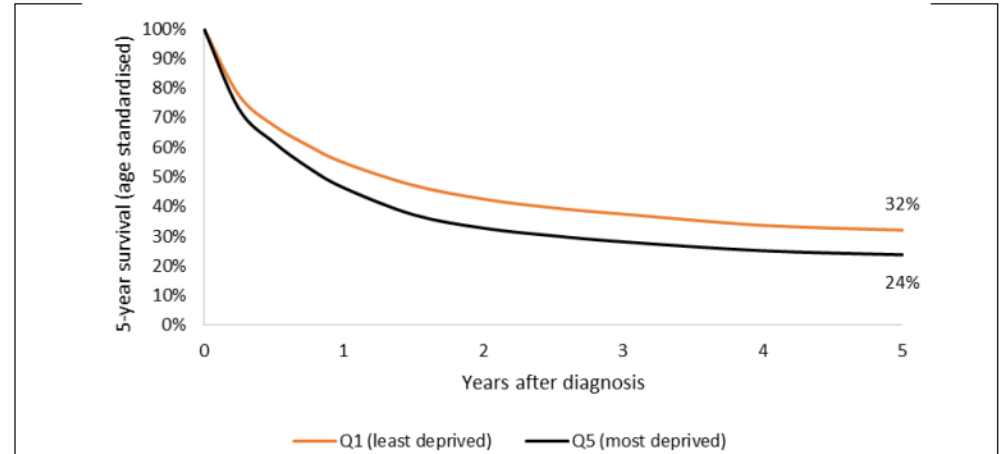
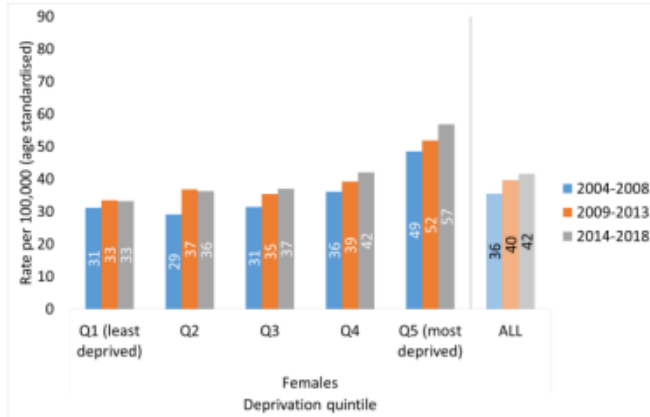


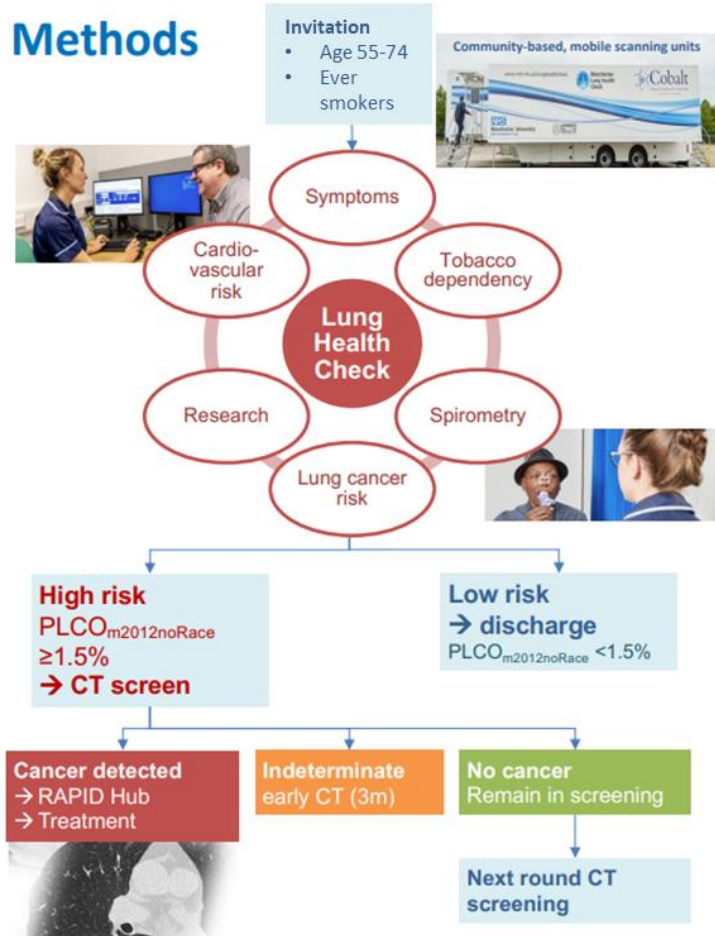
Figure 4.2.2 Cause-specific five-year survival curve for lung cancer patients: comparison of least and most deprived quintiles, 2014-2018

NCRI Cancer inequalities in Ireland by deprivation 2004-2018

Community Based Mobile Lung Health Units



Methods



Pilot Lung Cancer Screening Programme in Ireland.



“
One of the main problems with lung cancer is stigma. We need a change in how we relate to people suffering from lung cancer, from a societal point of view. The SOLACE project can really change that and lift the stigma for patients.”

Ivica Belina, Croatia, president of Coalition of Association in Healthcare representing patients, member of the SOLACE Stakeholder Advisory Group

Participant countries



Austria



Belgium



Croatia



Czechia



Estonia



France



Germany



Greece



Hungary



Ireland



Italy



Netherlands



Poland



Romania



Spain

HEALTH

Irish lung cancer screening pilot to get underway

The pilot will involve targeting more deprived communities where smoking and lung cancer rates tend to be higher

DANIEL MURRAY | APRIL 13, 2023

HEALTH

Irish Cancer Society says lung screenings ‘imperative’ as pilot to be launched


The Business Post revealed last week that a lung cancer screening pilot would soon get underway under the authority of the Royal College of Surgeons Ireland (RCSI) as part of a wider European Union-funded lung screening programme

DANIEL MURRAY | APRIL 18, 2023


The Future For Lung Cancer Screening...

- National Lung cancer screening programme (not included in current National Cancer Strategy)
- Incorporation of artificial intelligence and biomarkers

When to Refer...




Targeted Lung Health Check Programme




NHS
University Hospitals
of North Midlands
NHS Trust

Signs and symptoms of lung cancer


If you are experiencing any of these symptoms speak to your doctor. It's probably nothing to worry about but if it is lung cancer, getting it diagnosed early could save your life.




Persistent cough




Repeat chest infections




Finger-clubbing




**Unexplained weight/
appetite loss**




Breathlessness




Chest and/or shoulder pain




**Unexplained tiredness
or lack of energy**



Coughing up blood

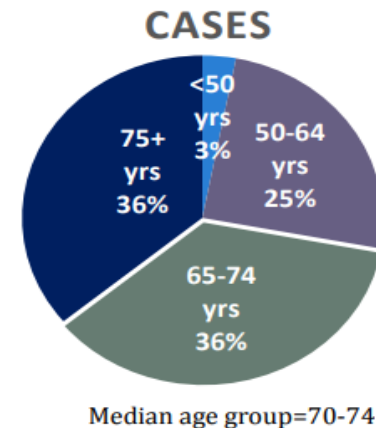






Change in long term cough or a cough that gets worse






Hoarseness of voice

Targeted Lung Health Checks Stoke
www.uhnm.nhs.uk/our-services/lung-health-checks



-  **Tobacco and secondhand smoke**
-  **Radon**
-  **Asbestos**
-  **Toxic workplace chemicals**

-  **Genetics**
(your family history may reveal genetic risk)
-  **Air pollution**
-  **Radiation therapy**
(treatment for previous cancer)

Routes to Lung Cancer Diagnosis

- Rapid access lung clinic \approx 50%
- Emergency presentation \approx 15%
- Other

Table 1: Indications for Urgent Chest X-ray¹

A patient with the following signs or symptoms should be referred for urgent chest x-ray. A report should be back to the GP within one week of request.

Symptoms

- Haemoptysis
- New onset unexplained or persistent cough (>3 weeks)
- Alteration in character/severity of chronic cough
- Unexplained chest pain or dyspnoea
- Unexplained weight loss/cachexia
- Unexplained bone pain/neurological symptoms

Signs

- Clubbing
- Lymphadenopathy
- Focal chest signs
- Hepatomegaly

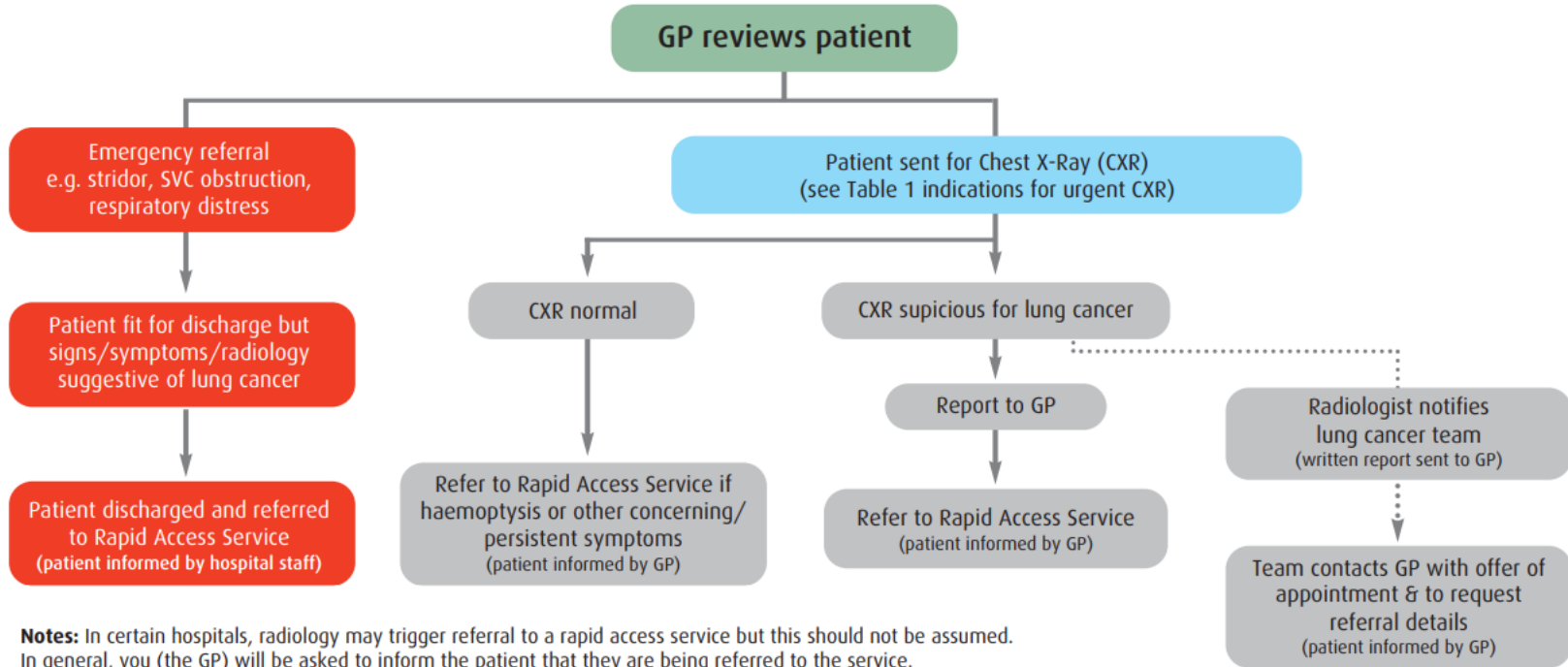
Note: if there is a suspicion of lung cancer, it is not advisable to delay referral by ordering an outpatient CT. A rapid access service can arrange both imaging and bronchoscopy.

1. Irish Thoracic Society Lung Cancer Sub-committee. Guidelines for the diagnosis and treatment of Lung Cancer. 3rd ed. Irish Thoracic Society 2009.

CXR false negative in >20% of patients ultimately diagnosed with lung cancer!

RALC Referral Pathway

REFERRAL PATHWAY



Notes: In certain hospitals, radiology may trigger referral to a rapid access service but this should not be assumed. In general, you (the GP) will be asked to inform the patient that they are being referred to the service.

REFERRAL PATHWAY

GP reviews patient

LUNG CANCER RAPID ACCESS SERVICES

Emergency
e.g. stridor, SV
respirator

Patient fit for
signs/symptoms
suggestive of

Patient discharged
to Rapid Access
(patient informed)

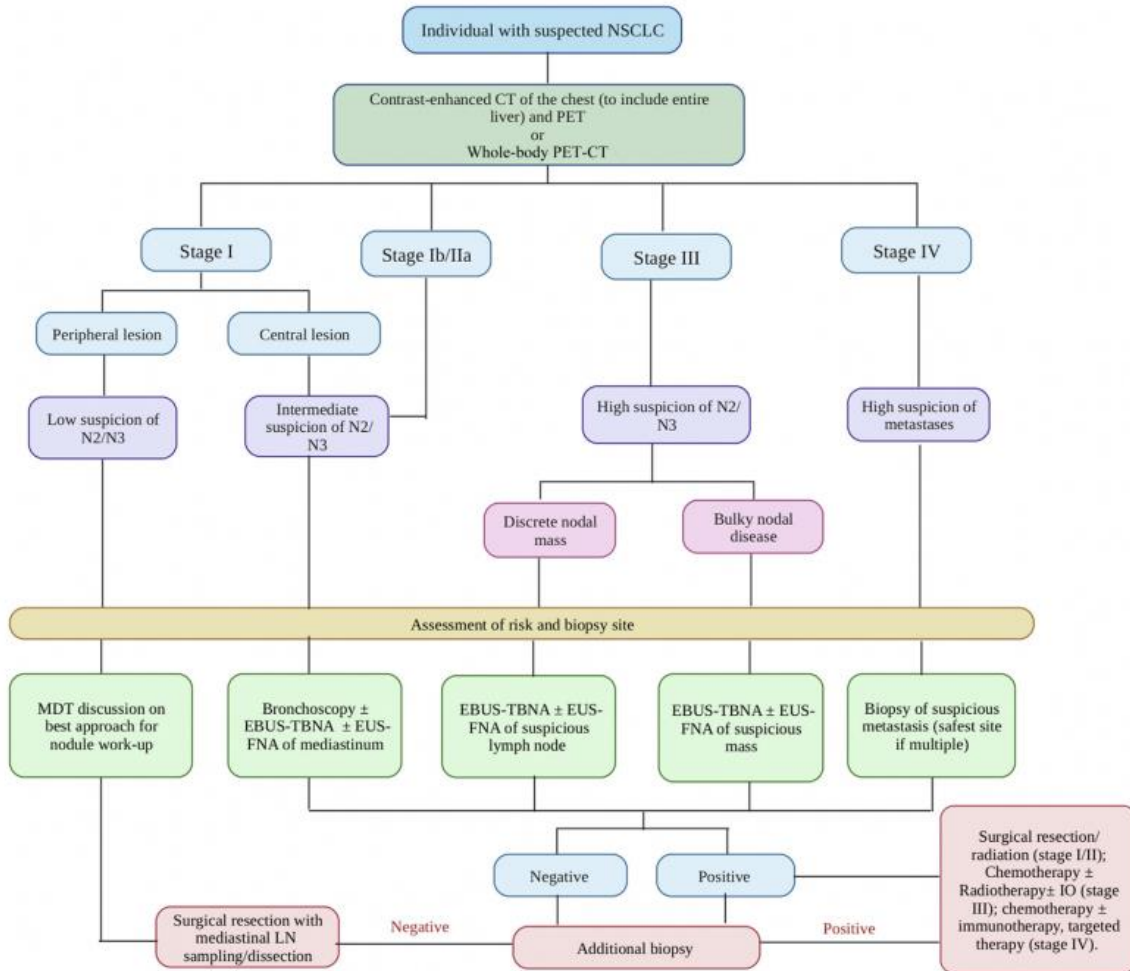
Beaumont Hospital, PO Box 1297, Dublin 9	Tel: (01) 809 3484	Fax: (01) 809 3488
Cork University Hospital, Wilton, Cork	Tel: (021) 492 0453	Fax: (021) 492 2391
Galway University Hospital	Tel: (091) 542 234	Fax: (091) 542 092
Mater University Hospital, Dublin 7	Tel: (01) 803 2644/2295	Fax: (01) 803 4036
Mid Western Regional Hospital, Limerick	Tel: (061) 585 637	Fax: (061) 482 572
St. James's Hospital, Dublin 8	Tel: (01) 416 2196	Fax: (01) 410 3549
St. Vincent's University Hospital, Dublin 4	Tel: (01) 221 3702	Fax: (01) 221 3576
Waterford Regional Hospital, Waterford	Tel: (051) 848 988	Fax: (051) 848 844

ES
GP)

offer of
request

Notes: In certain hospitals, radiology may trigger referral to a rapid access service but this should not be assumed. In general, you (the GP) will be asked to inform the patient that they are being referred to the service.

(patient informed by GP)

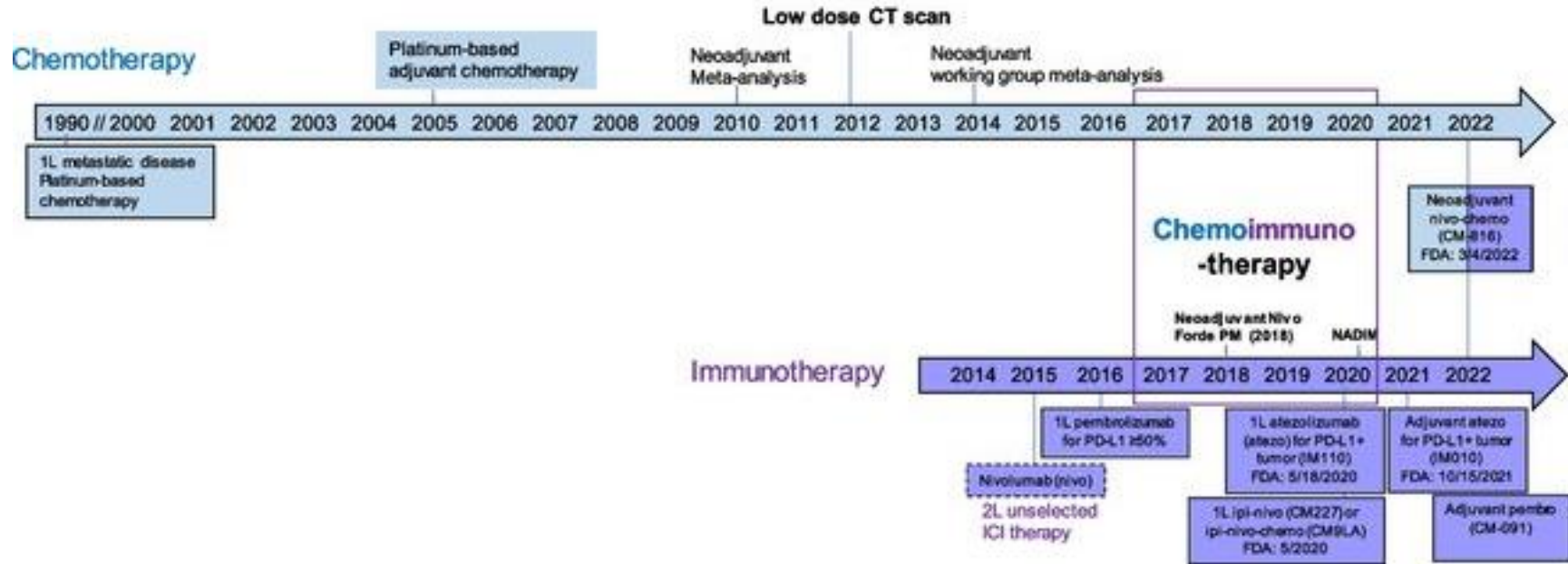


Diagnostics:

- CT chest/liver
- PET/CT
- MRI Brain
- Bronchoscopy
- Image guided biopsy
- EBUS/EUS-FNA

Keogh, JTO, 2023

New Drug Approvals in Lung Cancer: Immunotherapy



Godoy, Biomarker Research, 2023

The NEW ENGLAND JOURNAL of MEDICINE

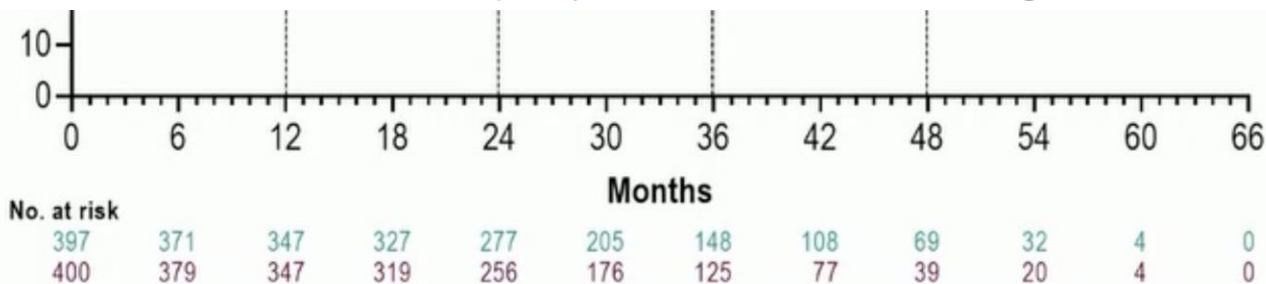
ESTABLISHED IN 1812

AUGUST 10, 2023

VOL. 389 NO. 6

Perioperative Pembrolizumab for Early-Stage Non-Small-Cell Lung Cancer

H. Wakelee, M. Liberman, T. Kato, M. Tsuboi, S.-H. Lee, S. Gao, K.-N. Chen, C. Dooms, M. Majem, E. Eigendorff, G.L. Martinengo, O. Bylicki, D. Rodríguez-Abreu, J.E. Chaft, S. Novello, J. Yang, S.M. Keller, A. Samkari, and J.D. Spicer, for the KEYNOTE-671 Investigators*



Median OS (95% CI), mo

35.7 (NR)

35.7 (NR)

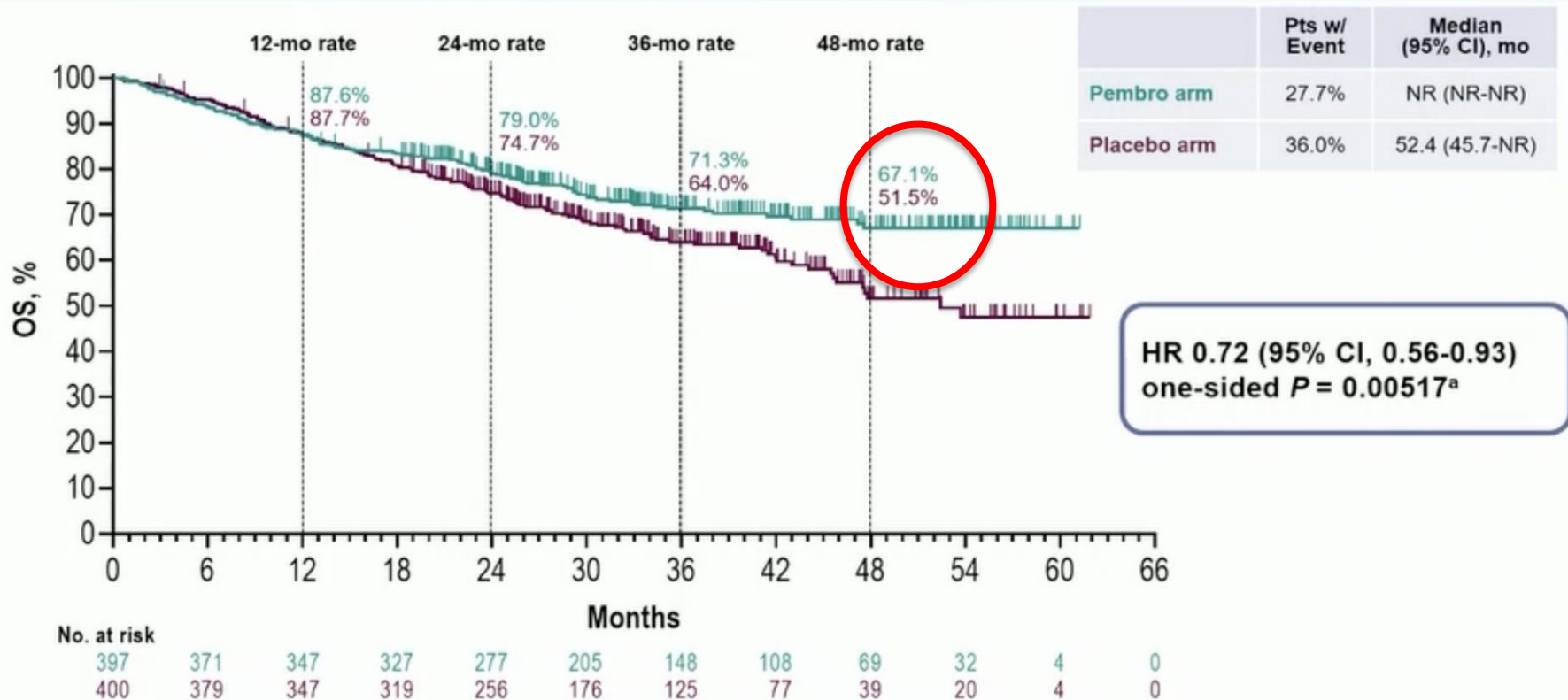
(.93)

OS defined as time from randomization to death from any cause. * Significance boundary at IA2, one-sided $P = 0.00543$.

Data cutoff date for IA2: July 10, 2023.

Overall Survival, IA2

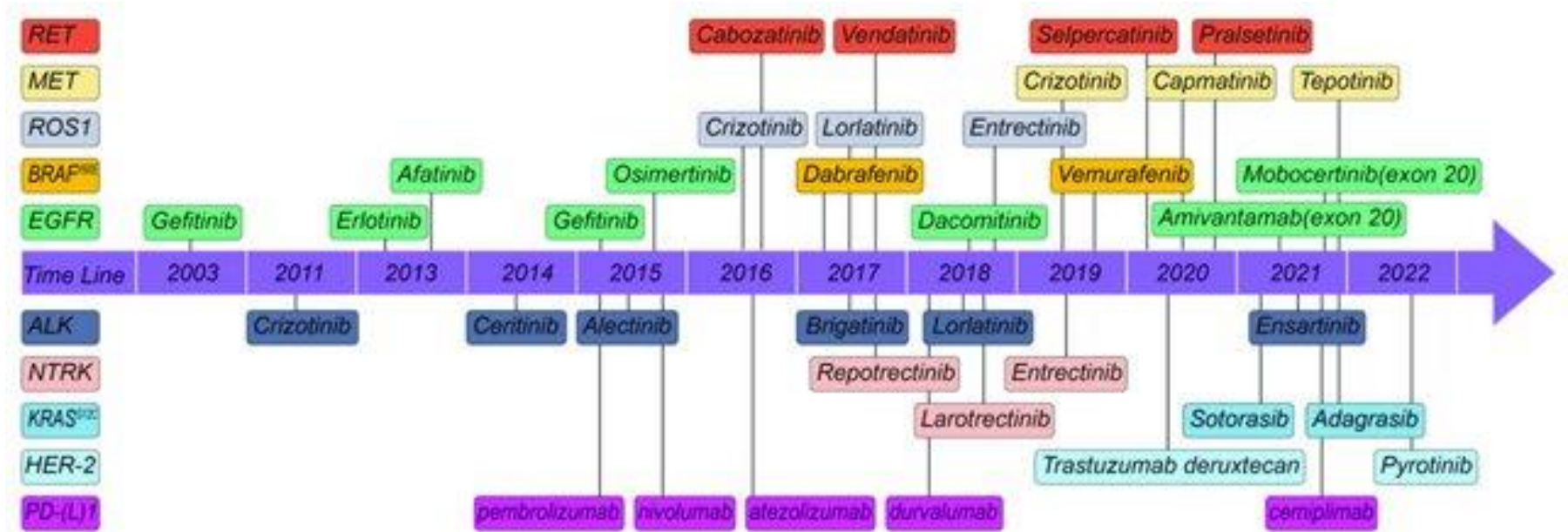
Median Follow-Up: 36.6 months (range, 18.8-62.0)



OS defined as time from randomization to death from any cause. * Significance boundary at IA2, one-sided $P = 0.00543$.

Data cutoff date for IA2: July 10, 2023.

New Drug Approvals in Lung Cancer: Targeted Therapy



Guo, Cells, 2022

A large, stylized, light blue 'S' shape is positioned on the left side of the slide, partially overlapping the main text area. The background is a solid dark blue.

Thank you