



Roken gerelateerde longaandoeningen

**BELGIAN
NURSING
DAY 2024
7 DECEMBER**



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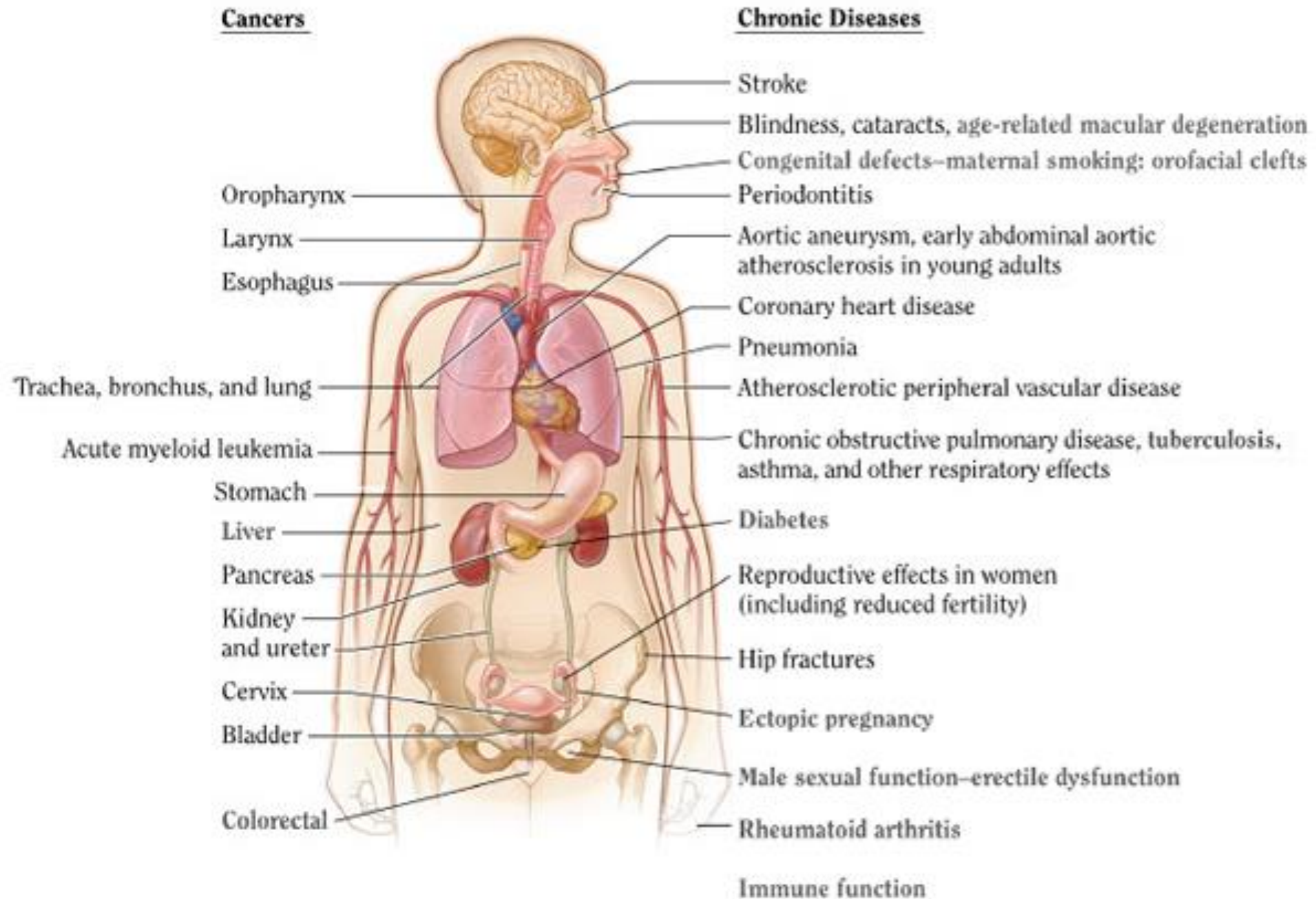
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Conflicts of interest

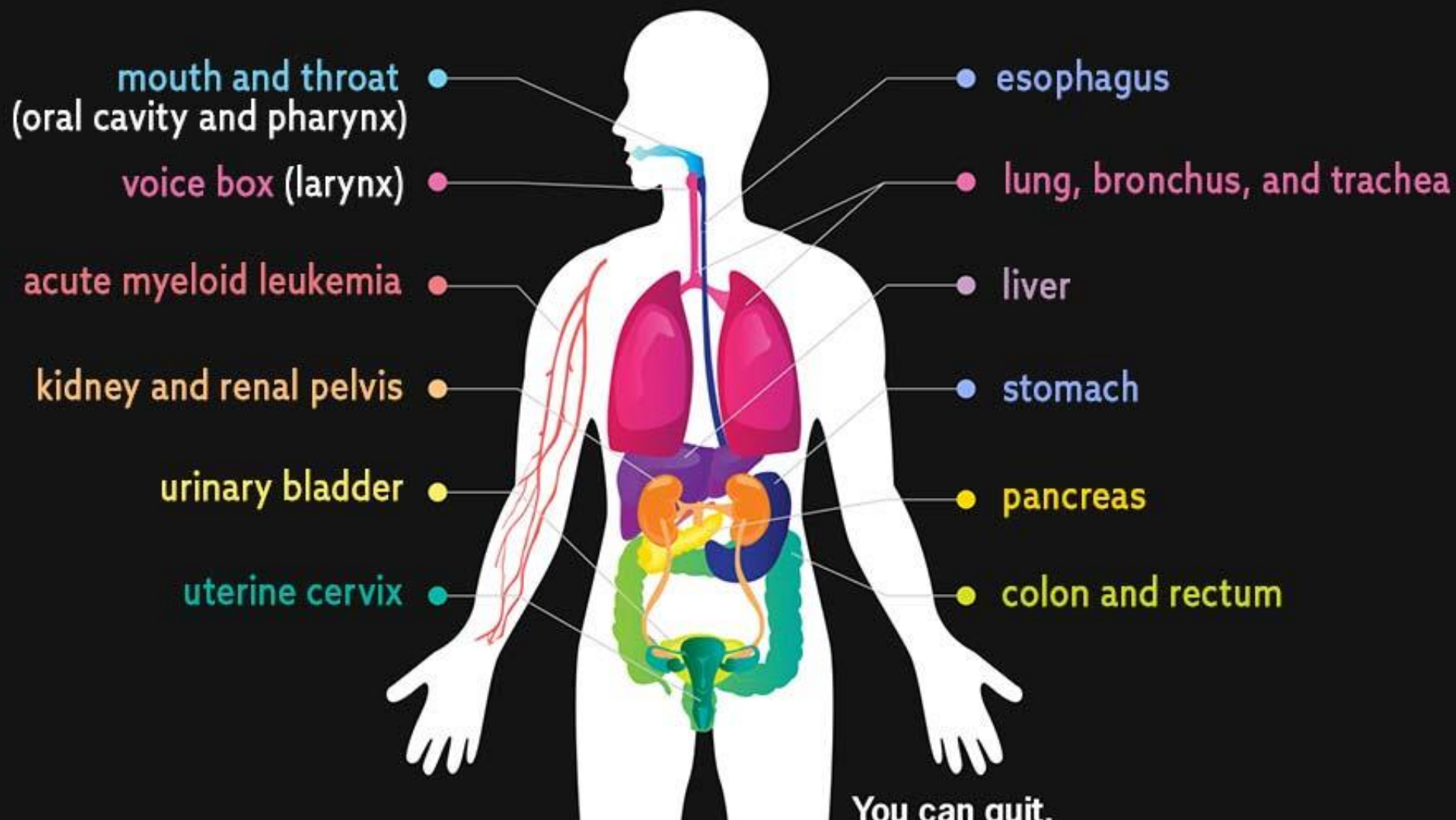
Support for lectures, advisory board meetings, teaching, conference attendance and reports, research grants from:

- AstraZeneca
- Boehringer Ingelheim
- Chiesi
- GSK
- Novartis
- Sanofi

Gezondheids- effecten van roken



Smoking can cause cancer almost anywhere in your body.



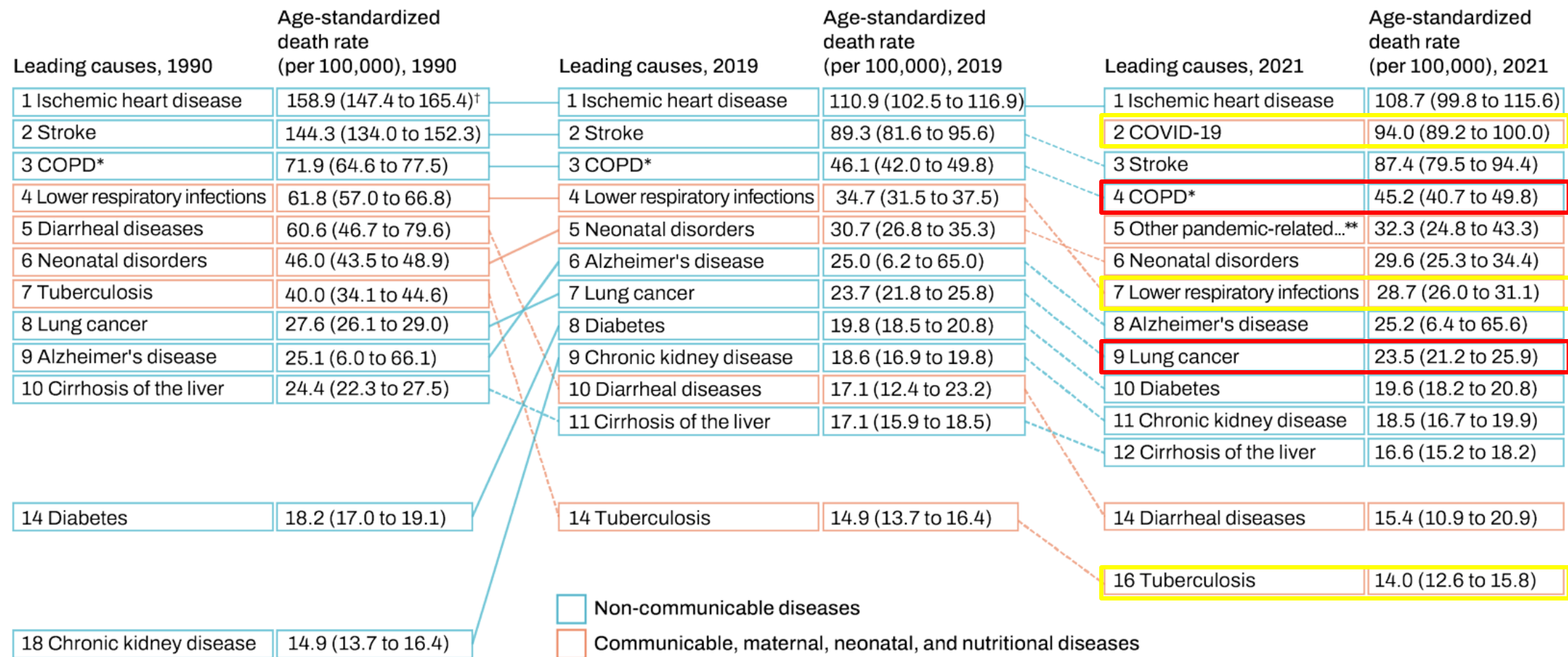
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Leading causes of death around the world in 1990, 2019, and 2021



[†] Uncertainty intervals are a range of values that are likely to include the correct estimate of health loss for a given cause.

* Chronic obstructive pulmonary disease

** Other pandemic-related mortality; includes excess mortality associated with the pandemic.

Estimated EU mortality 2030

Percentage of deaths worldwide	2008	2015	2030
Lower respiratory infections	6.1	5.5	4.2
COPD	5.8	6.6	8.6
Trachea/bronchus/lung cancer	2.4	2.8	3.4
Tuberculosis	2.4	1.6	3.4
Percentage of deaths in WHO European region	2008	2015	2030
Lower respiratory infections	2.3	2.2	1.9
COPD	2.5	2.7	3.2
Trachea/bronchus/lung cancer	3.9	3.9	4.1
Tuberculosis	0.8	0.7	0.4

1/5 of deaths worldwide by 2030

1/10 of deaths in EU by 2030

Table 3 – Projected proportion of deaths due to leading respiratory causes. COPD: chronic obstructive pulmonary disease. Source: World Health Organization World Health Statistics 2011.

Smoking and **respiratory infections** are major causes of the burden of lung disease in Europe, and are potentially preventable.

Top 10 risk factors for disease burden among children vs. older adults globally, 2021

Rank*	Children under 5	People aged 70+
1	Low birth weight	High blood pressure
2	Short gestation	High fasting plasma glucose (high blood sugar)
3	Child underweight	Smoking
4	Household air pollution from solid fuels	Ambient particulate matter pollution
5	Child wasting	High body mass index (adult)
6	Child stunting	Kidney dysfunction
7	Unsafe water source	High LDL cholesterol
8	Ambient particulate matter pollution	Household air pollution from solid fuels
9	Unsafe sanitation and handwashing	Diet high in sodium
10	No access to handwashing facility	Lead exposure in bone



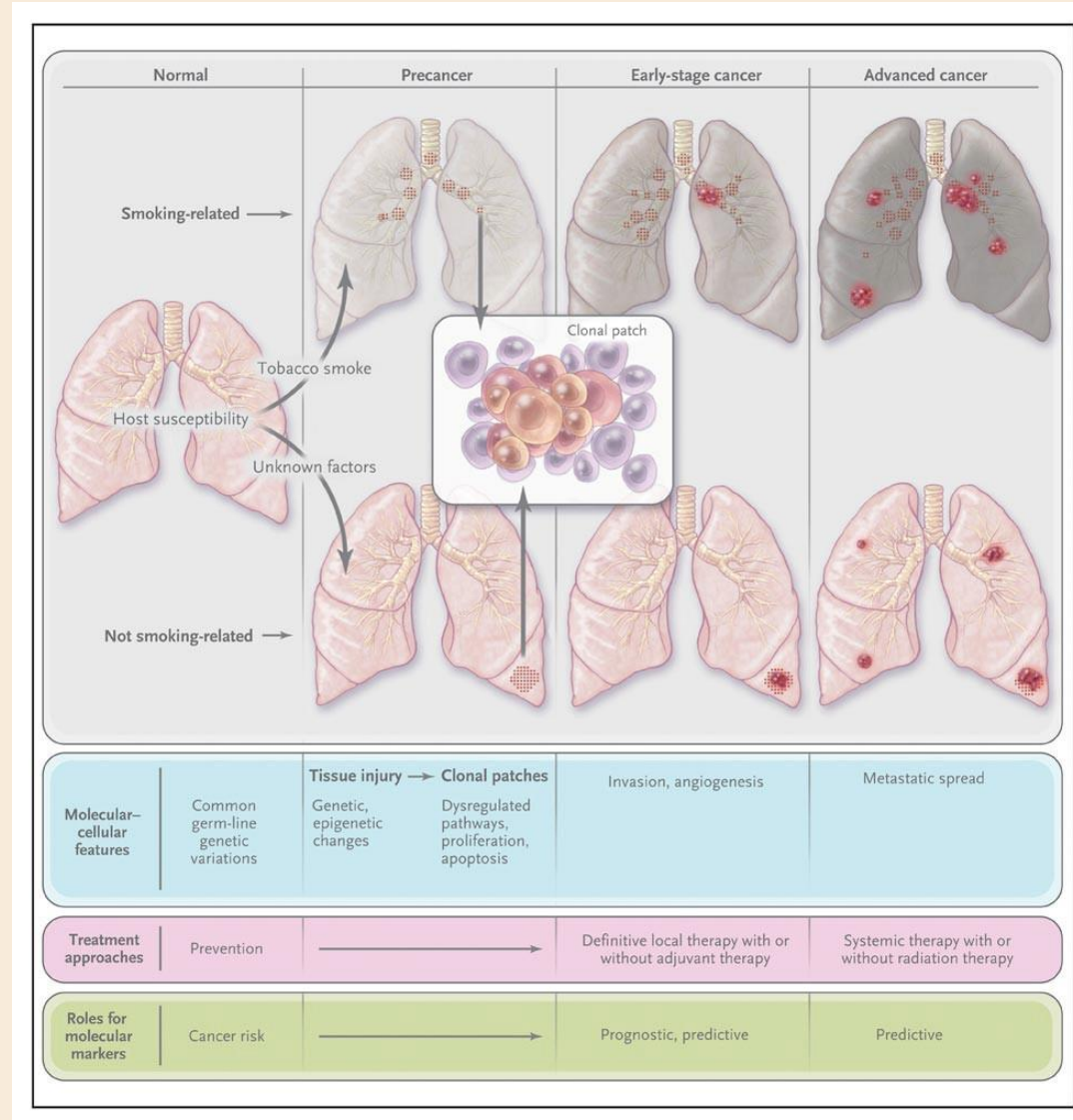
Table 2. Relative Risks of Death from Specific Causes among Persons 55 Years of Age or Older, According to Sex and Smoking Status.*

Cause of Death	Relative Risks of Death from Specific Causes among Persons 55 Years of Age or Older, According to Sex and Smoking Status							
	Never Smoked		Women		Never Smoked		Men	
	no. of deaths	relative risk	no. of deaths	relative risk (95% CI)	no. of deaths	relative risk	no. of deaths	relative risk (95% CI)
All causes	31,786	1.0	8150	2.8 (2.7–2.9)	24,863	1.0	8325	2.8 (2.8–2.9)
Diseases established as caused by smoking†								
Lip and oral cavity cancer, C00–C14	57	1.0	42	5.6 (3.7–8.6)	82	1.0	64	5.7 (4.1–8.1)
Esophageal cancer, C15	81	1.0	50	5.1 (3.5–7.4)	178	1.0	104	3.9 (3.0–5.0)
Stomach cancer, C16	184	1.0	34	1.7 (1.2–2.5)	154	1.0	45	1.9 (1.4–2.7)
Colorectal cancer, C18–C20	1,016	1.0	174	1.6 (1.4–1.9)	753	1.0	160	1.4 (1.2–1.7)
Liver cancer, C22	228	1.0	40	1.8 (1.3–2.5)	228	1.0	74	2.3 (1.8–3.0)
Pancreatic cancer, C25	948	1.0	184	1.9 (1.6–2.2)	747	1.0	153	1.6 (1.4–1.9)
Laryngeal cancer, C32	2	1.0	27	103.8 (24.2–445.5)	23	1.0	50	13.9 (8.3–23.3)
Lung cancer, C33–C34	735	1.0	1872	22.9 (21.0–25.0)	480	1.0	1754	25.3 (22.8–28.1)
Primary bladder cancer, C57	119	1.0	18	3.9 (2.8–5.3)	201	1.0	84	3.9 (3.0–5.1)
Kidney and renal pelvis cancer, C64–C66	256	1.0	32	1.2 (0.9–1.8)	237	1.0	62	1.8 (1.4–2.4)
Acute myeloid leukemia, C92.0	180	1.0	22	1.1 (0.7–1.7)	210	1.0	48	1.9 (1.4–2.7)
Diabetes, E10–E14	743	1.0	110	1.5 (1.3–1.9)	729	1.0	142	1.6 (1.3–1.9)
Ischemic heart disease, I20–I25	4,119	1.0	1014	3.0 (2.8–3.2)	4,947	1.0	1522	2.6 (2.4–2.7)
Other heart disease, I00–I09 and I26–I51	2,329	1.0	340	1.9 (1.7–2.1)	1,736	1.0	364	2.0 (1.8–2.2)
Total stroke, I60–I69	2,435	1.0	385	2.1 (1.8–2.3)	1,399	1.0	279	1.9 (1.7–2.2)
Atherosclerosis, I70	76	1.0	12	2.1 (1.1–4.0)	57	1.0	32	5.0 (3.2–7.9)
Aortic aneurysm, I71	99	1.0	91	10.1 (7.4–13.6)	126	1.0	116	7.5 (5.8–9.7)
Other arterial diseases, I72–I78	81	1.0	47	5.6 (3.9–8.2)	57	1.0	36	5.3 (3.4–8.2)
Pneumonia, influenza, and tuberculosis, J10–J18 and A16–A19	723	1.0	100	1.9 (1.6–2.4)	487	1.0	87	2.0 (1.6–2.6)
COPD, J40–J44	410	1.0	941	25.0 (21.2–28.1)	259	1.0	825	27.8 (24.1–32.0)
Additional diseases associated with smoking‡								
All infections, A00–B99§	598	1.0	137	2.5 (2.1–3.0)	475	1.0	125	2.2 (1.8–2.7)
Breast cancer, C50	1,748	1.0	274	1.3 (1.2–1.5)	—	—	—	—
Prostate cancer, C61	—	—	—	—	1,101	1.0	166	1.4 (1.2–1.7)
Rare cancers¶	1,233	1.0	143	1.1 (0.9–1.3)	402	1.0	84	1.6 (1.2–2.0)
Cancers of unknown site	866	1.0	237	2.7 (2.3–3.2)	665	1.0	268	3.2 (2.8–3.7)
Hypertensive heart disease, I11	244	1.0	45	1.9 (1.4–2.7)	193	1.0	75	2.9 (2.2–3.9)
Essential hypertension and hypertensive renal disease, I10 and I15	249	1.0	48	2.4 (1.7–3.4)	175	1.0	49	2.6 (1.9–3.6)

Relative risk:

- A measure of the risk of a certain event happening in one group compared to the risk of the same event happening in another group.

Longkanker

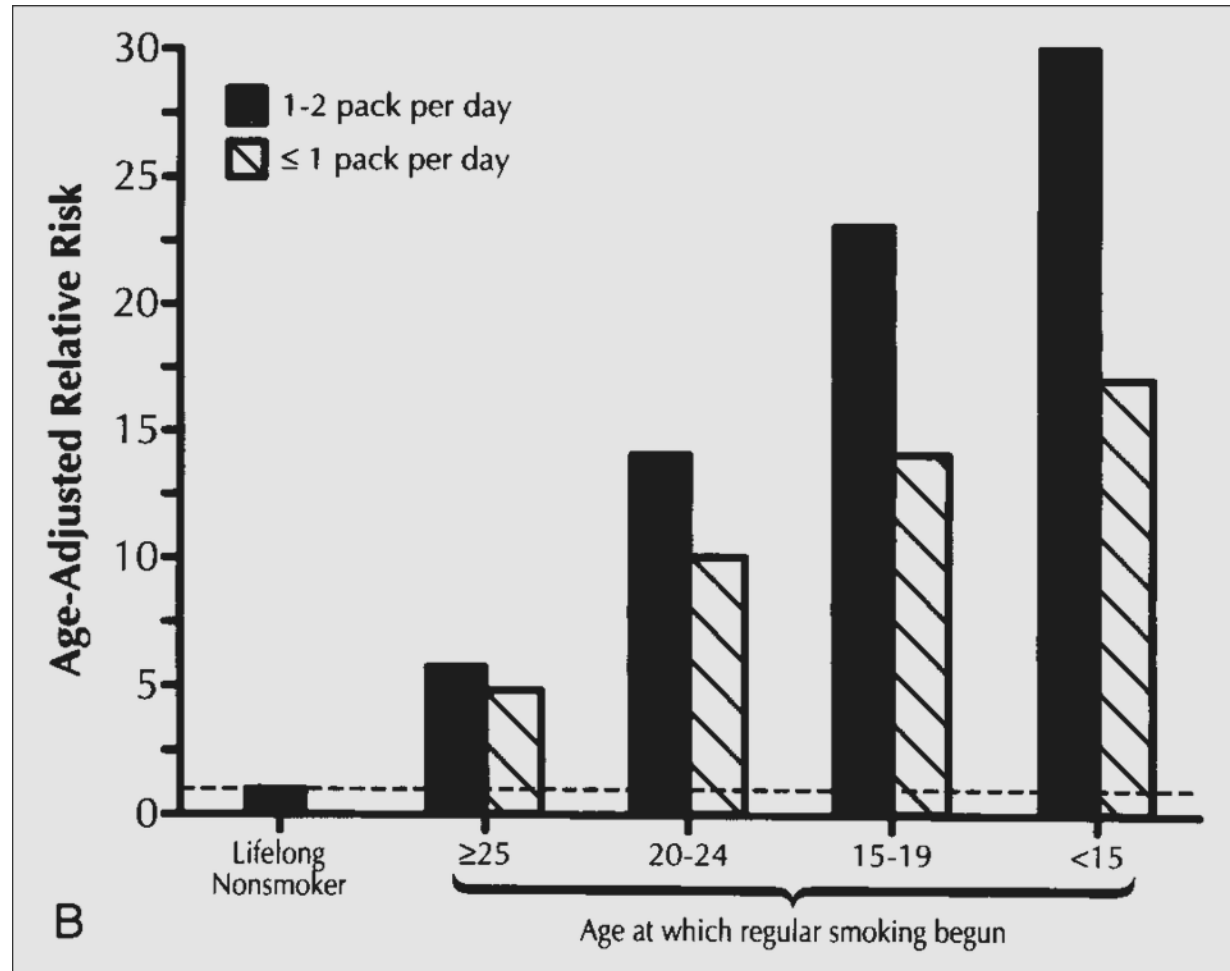


Longkanker: risicofactoren

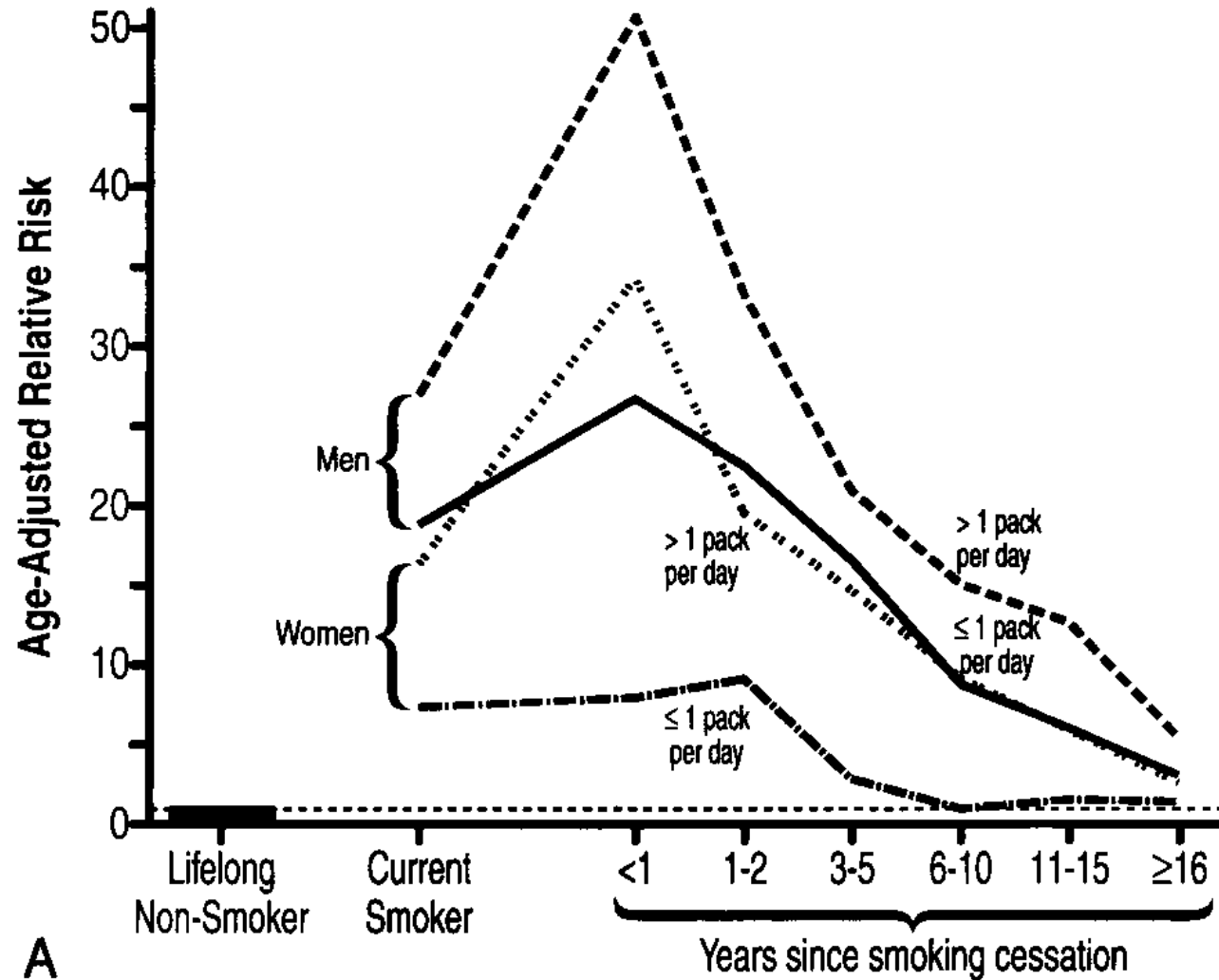
De 10 belangrijkste risicofactoren	
1. Roken	6. Roken
2. Roken	7. Roken
3. Roken	8. Roken
4. Roken	9. Radon
5. Roken	10. Asbest, ...

~85% van longkankers komen voor bij (ex-) rokers

Roken en Longkanker



Rookstop en risico op longkanker



A

Longkanker classificatie

Histologisch tumortype	Incidentie (%)
Niet-kleincellig bronchuscarcinoom <ul style="list-style-type: none">- adenocarcinoom- plaveiselcelcarcinoom- grootcellig carcinoom- niet verder gespecificeerd (NOS)	80% 40% 20% 10% 10%
Kleincellig bronchuscarcinoom	15%
Andere <ul style="list-style-type: none">-carcinoid, lymfoom, sarcoom ...	5%

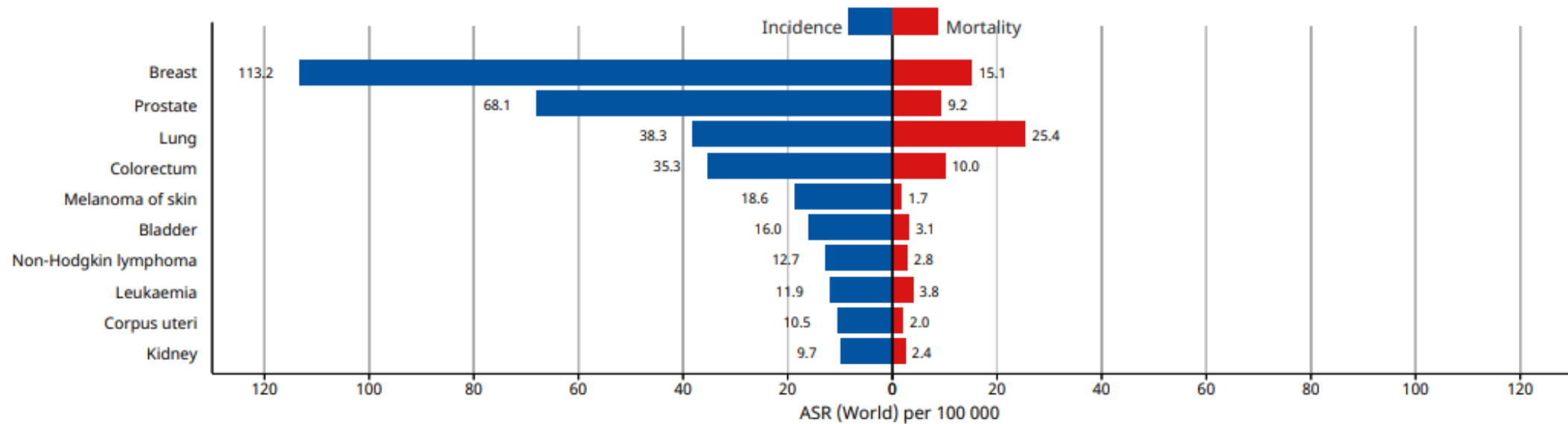
90% door roken

100% door roken

Longkanker mortaliteit België 2021

ASR (World) per 100 000

Age-standardized (World) incidence and mortality rates, top 10 cancers



Vaak laattijdige diagnose longkanker

Table 3: Lung Cancer: Distribution of combined stage by sex, Belgium 2021

	Stage I	Stage II	Stage III	Stage IV	Stage X	Stage NA	Total
Males							
N	1,223	436	1,069	2,727	211	9	5,675
%	21.6	7.7	18.8	48.1	3.7	0.2	100
Females							
N	933	230	579	1,640	131	4	3,517
%	26.5	6.5	16.5	46.6	3.7	0.1	100

Staging according to the TNM 8th edition (Ref: Brierley JD, Gospodarowicz MK, Wittekind Ch. TNM classification of malignant tumours, UICC 8th edition)

Combined TNM stage : compilation of pathological (pTNM) and clinical (cTNM) stage. pTNM prevails over cTNM, except when cTNM stage is IV

Stage X: diagnoses with an unknown stage

Stage NA: diagnoses with a histological diagnosis where no stage can be evaluated (Not Applicable)

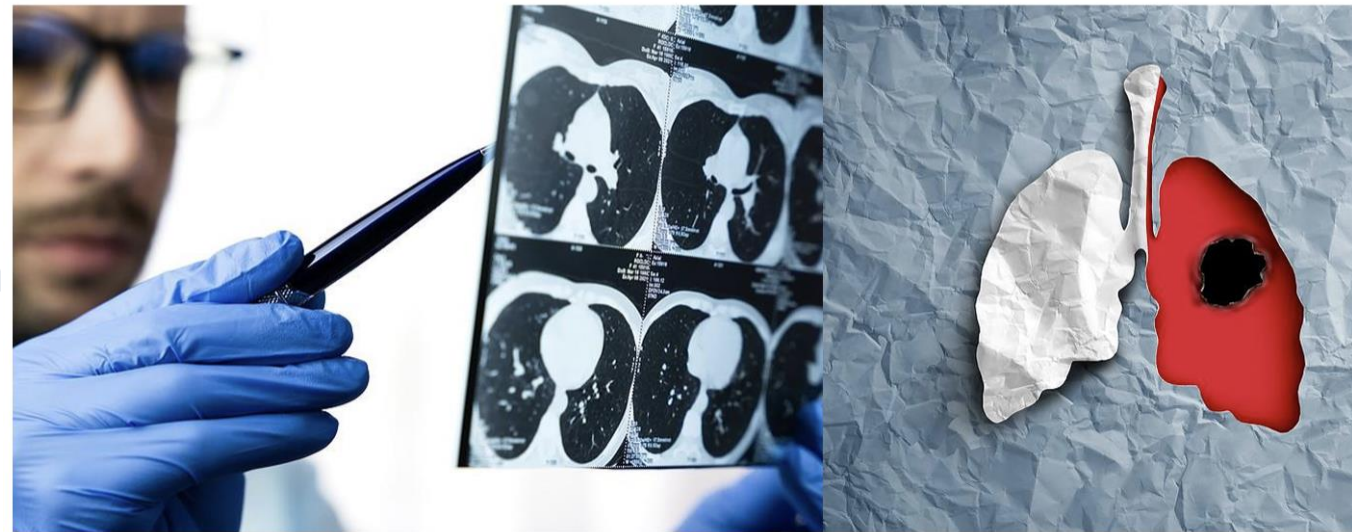
Longkanker screening?

- Vermindert longkanker en totale mortaliteit
- Vals positieve resultaten en incidentele bevindingen => follow-up, extra diagnostiek en Kosten
- Zou kosten-effectief kunnen zijn

KCE REPORT 379Cs

SYNTHESIS

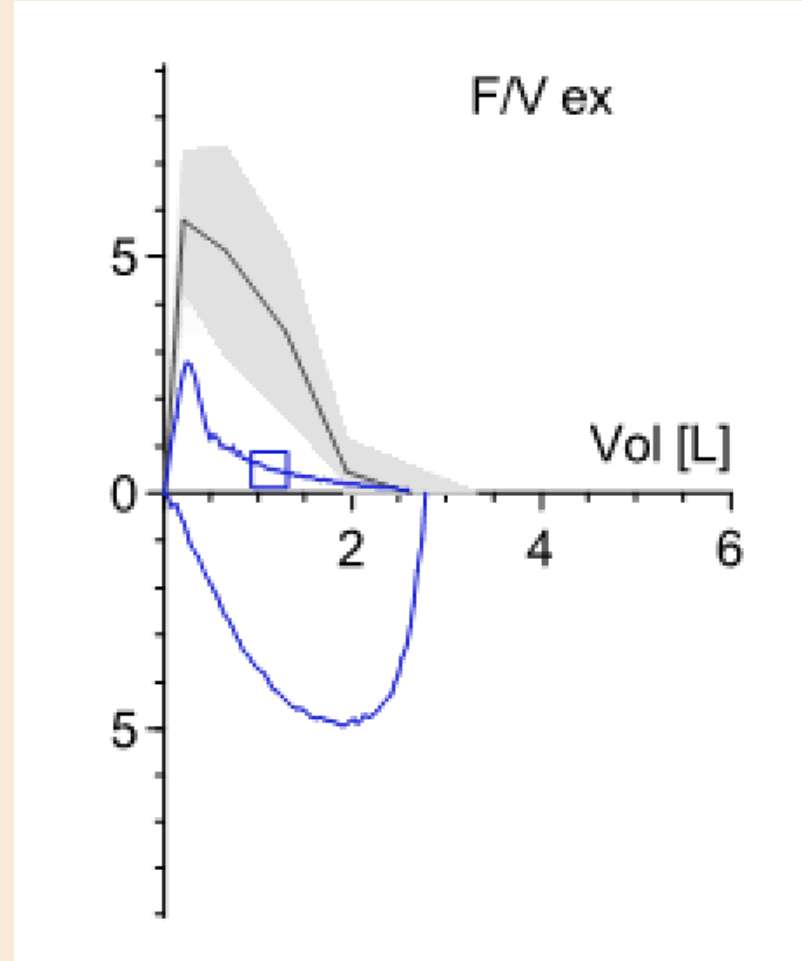
LUNG CANCER SCREENING IN A HIGH-RISK POPULATION





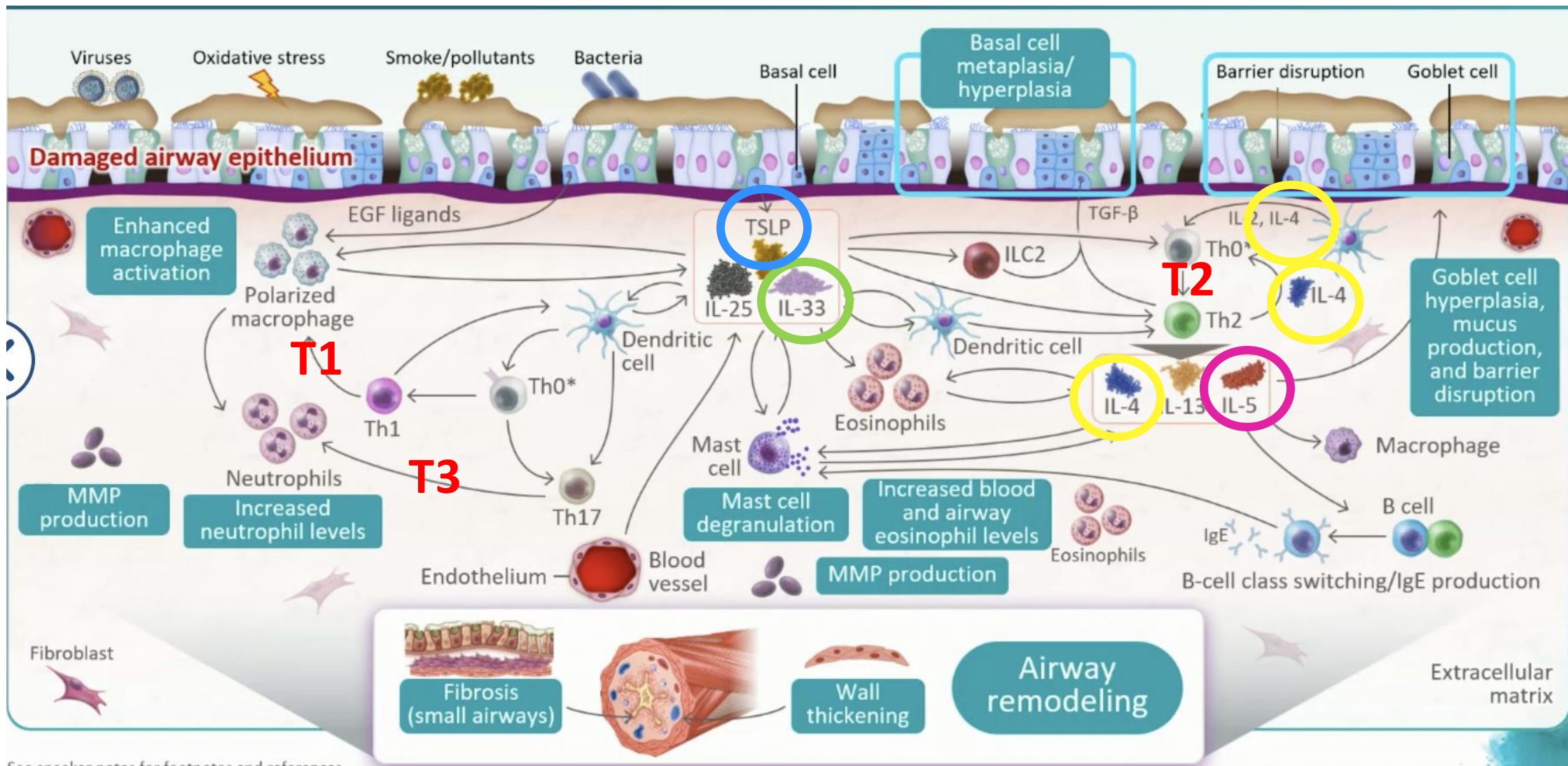
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COPD



Post-bronchodilator
spirometrie
 $FEV1/FVC < 70\%$

Inflammatory pathways associated with COPD

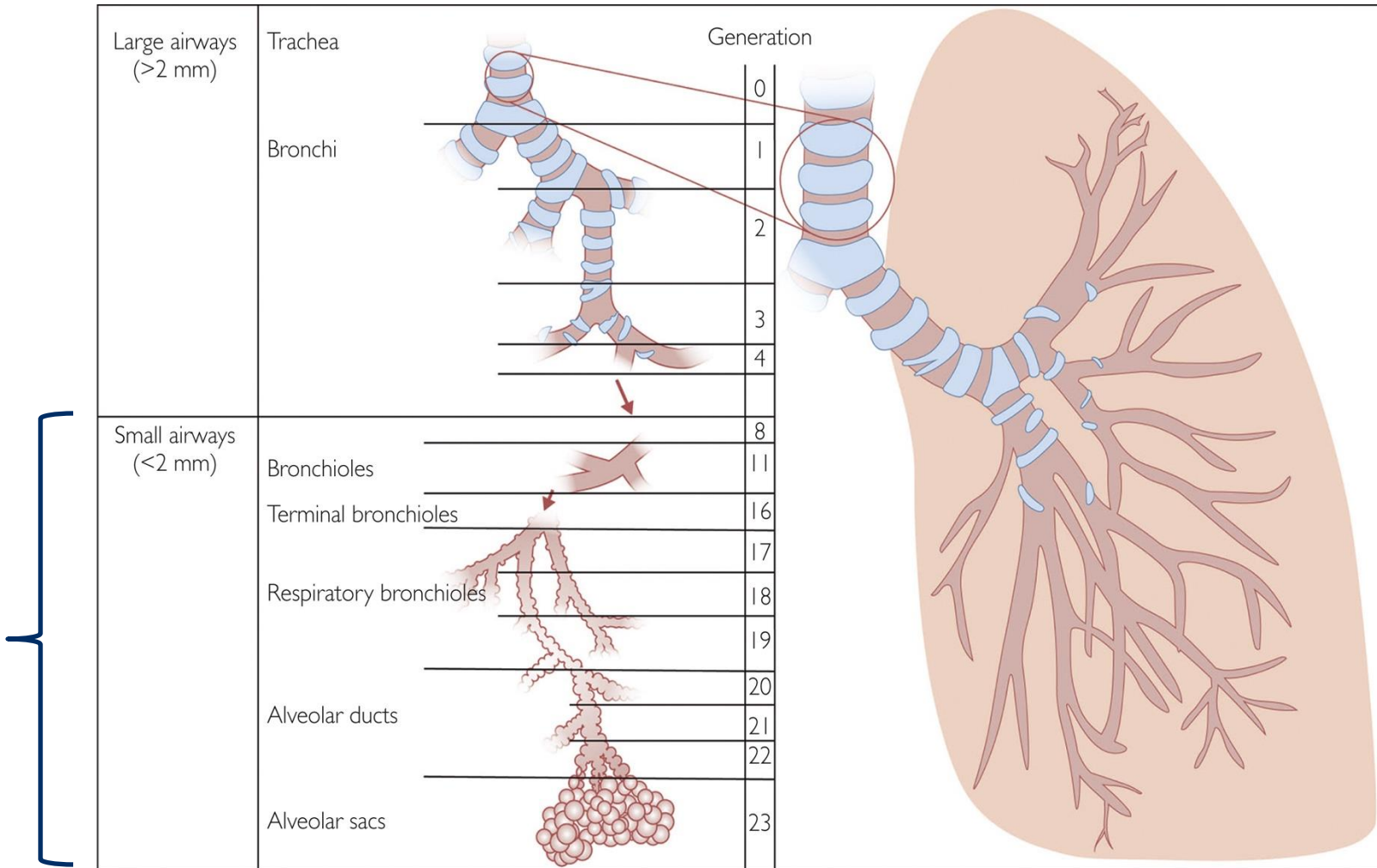


See speaker notes for footnotes and references

[ref]

The small airways – Silent zone

Quiet or
silent zone



A

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SITE AND NATURE OF AIRWAY OBSTRUCTION IN CHRONIC OBSTRUCTIVE LUNG DISEASE*

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AND W. M. THURLBECK, M.B., CH.B., M.C.PATH.

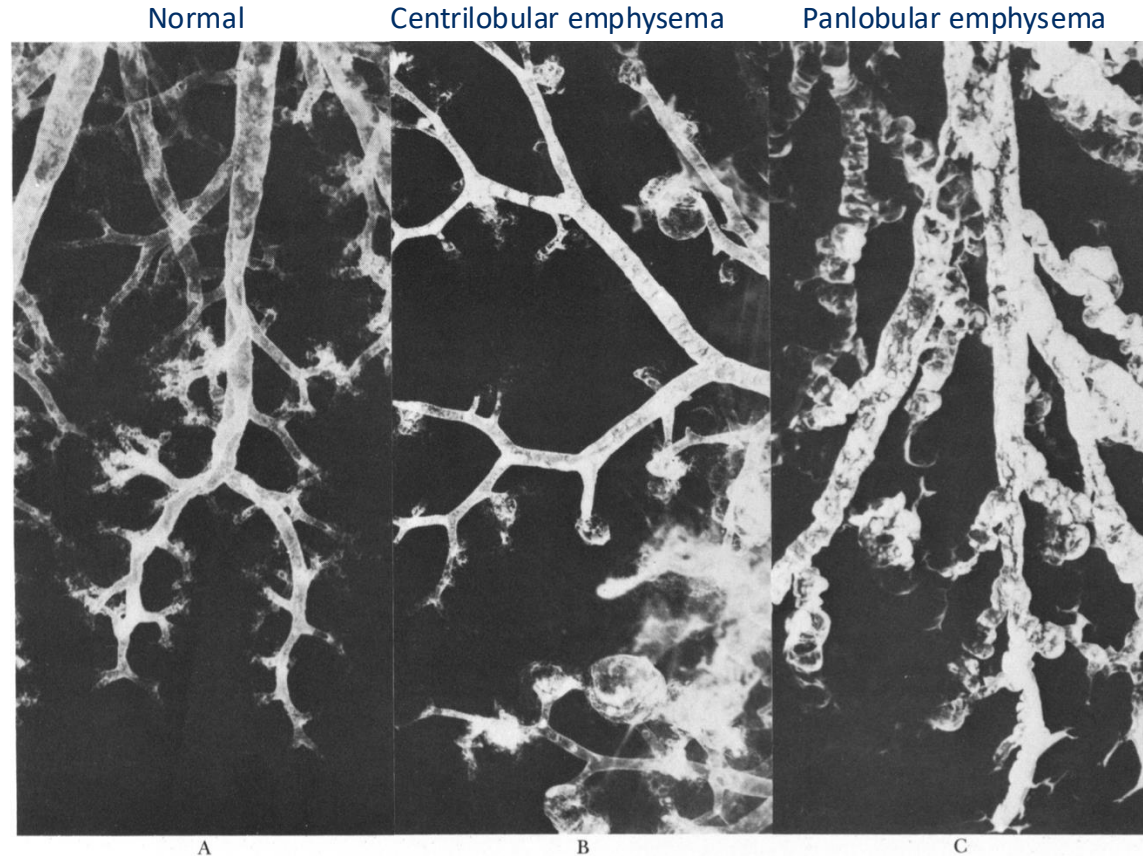
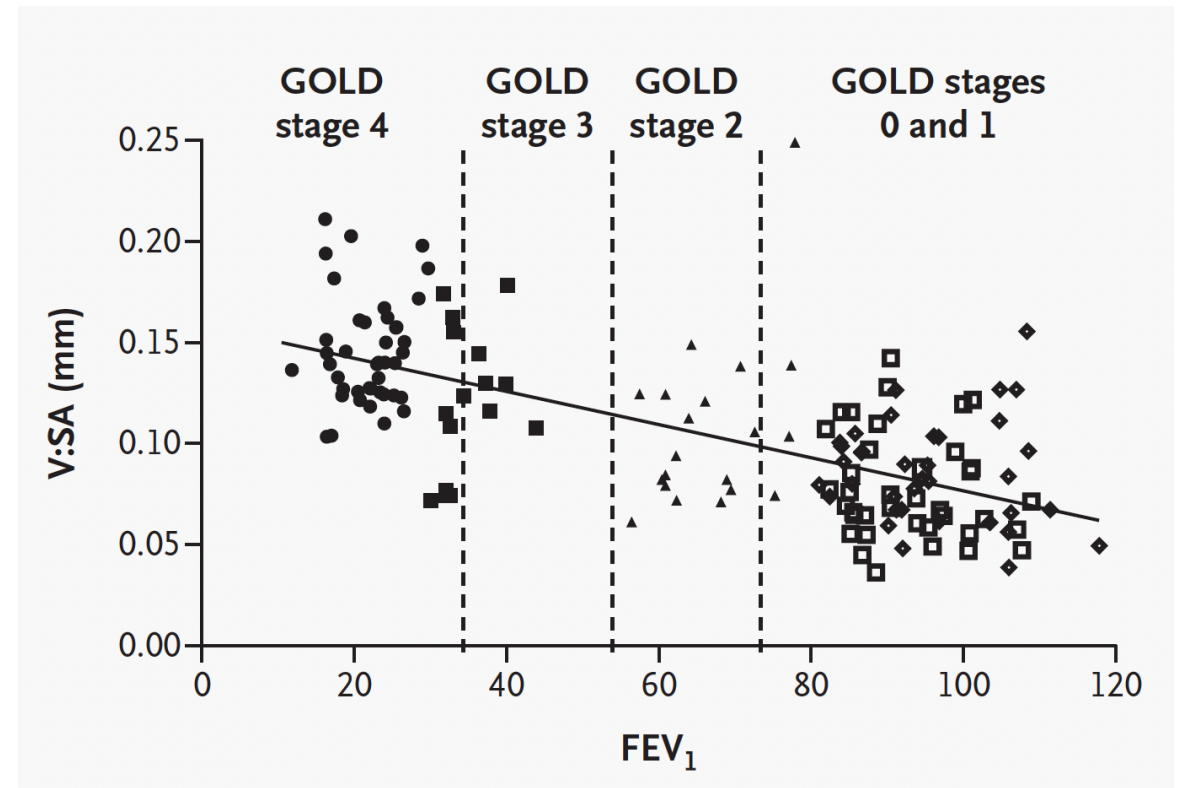
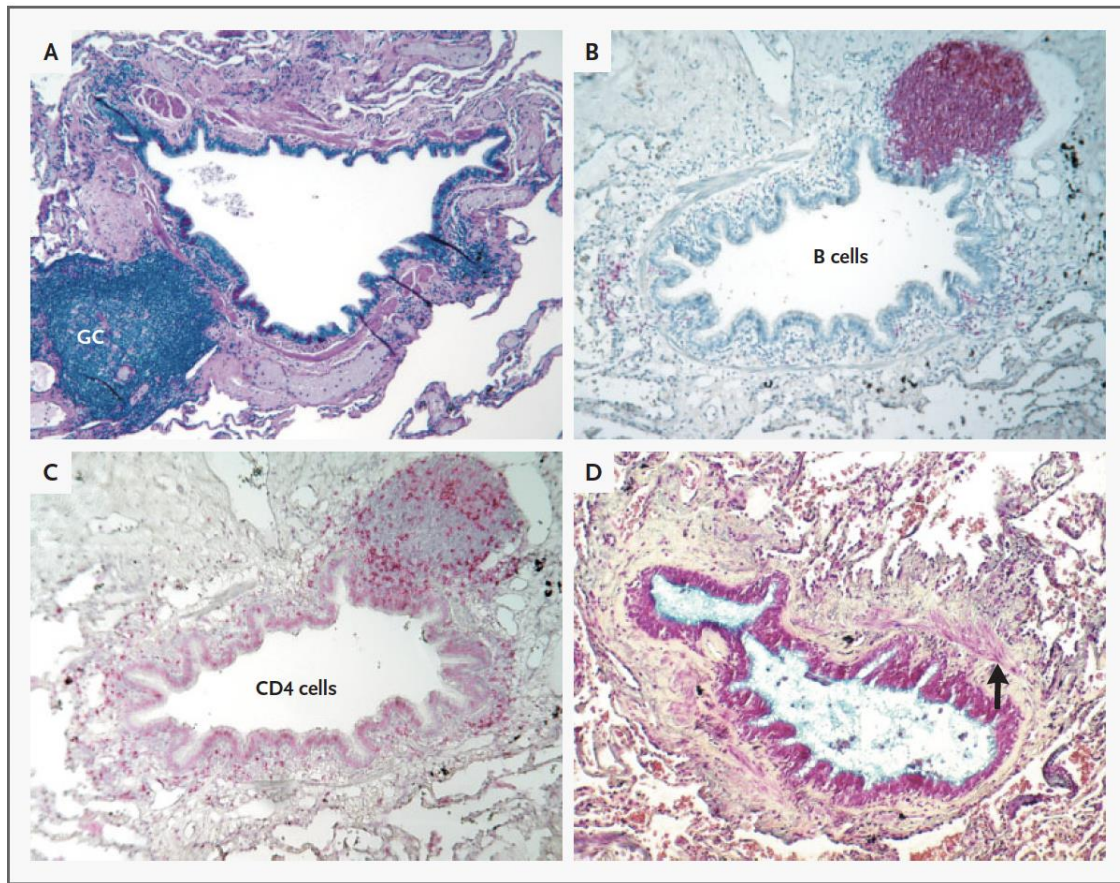


FIGURE 6. Bronchograms Using Finely Particulate Lead Dust as Contrast Material (X1.5).

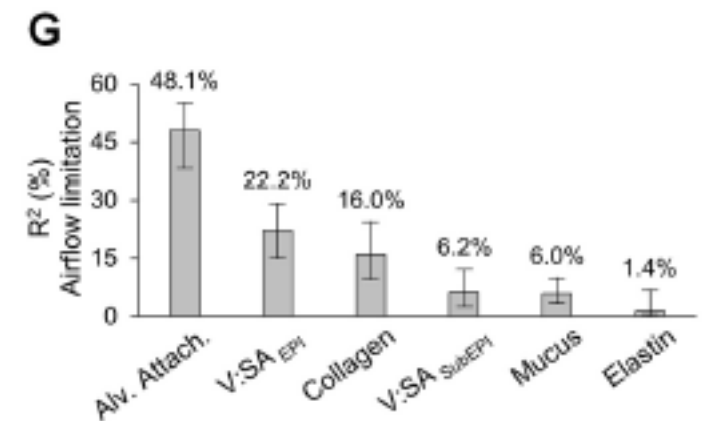
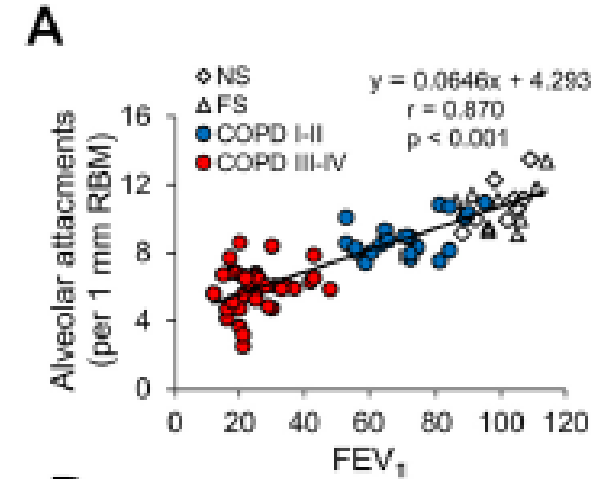
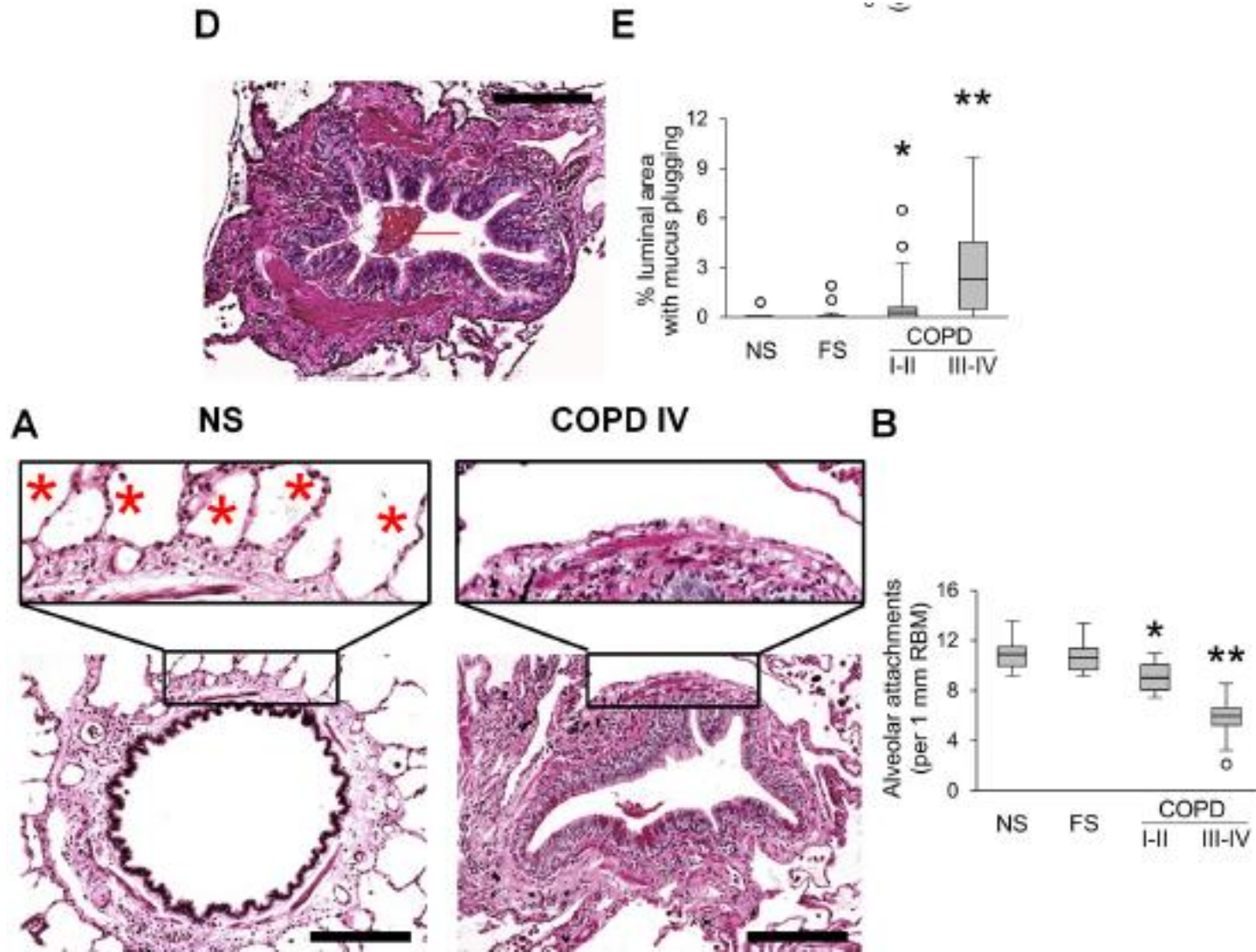
In A normal contrast material outlines the peripheral bronchial tree to the level of the respiratory bronchioles. In B (centrilobular emphysema) the contrast material has outlined the centrilobular emphysematous spaces, but many of the small airways appear occluded with blunt and tapering ends. The bronchogram in C (panlobular emphysema) shows the marked narrowing and tortuosity of the small airways. Although there appears to be bronchiectasis in this case, additional films revealed that the airways which appear dilated in this figure narrowed markedly at lower distending pressures.

Loss of small airways and
changed morphology

Small airway pathology in COPD

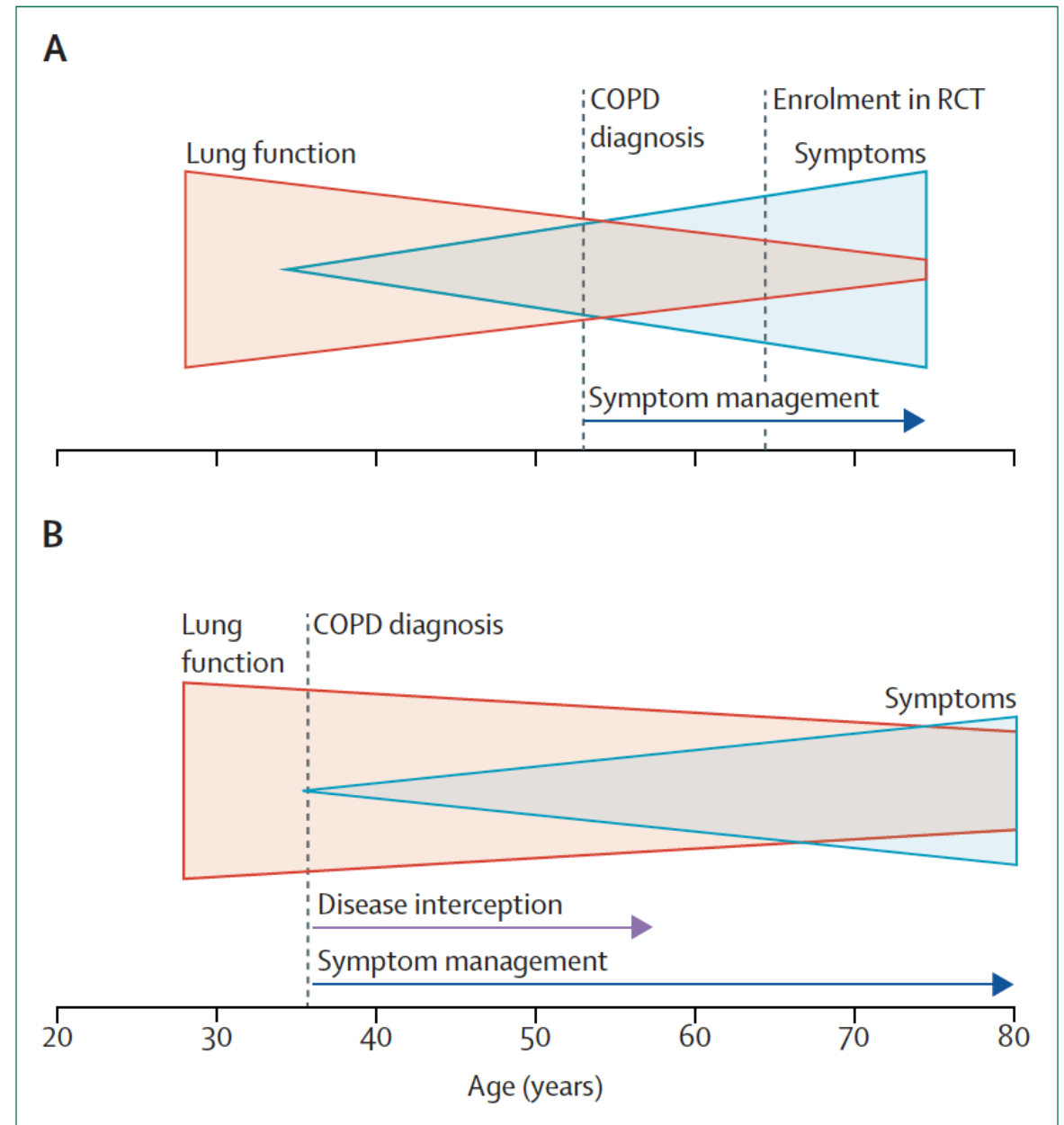


Small airway determinants of airflow limitation in COPD



Lancet Commission on COPD: The importance of early diagnosis to eliminate COPD

- **Objective: To set the course to eliminate COPD by challenging accepted dogma and generating debate.**

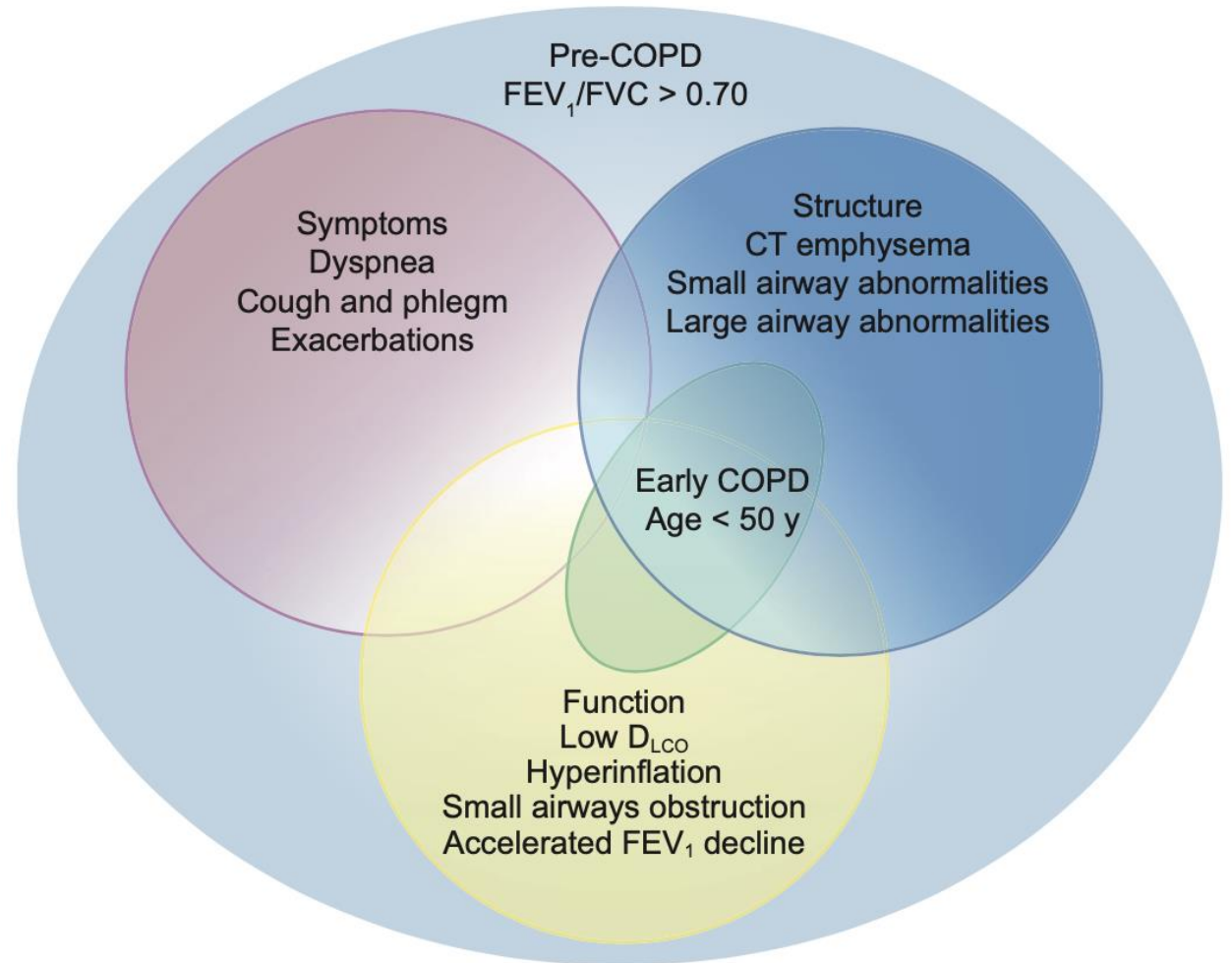


“Healthy” (ex-)smokers versus never smokers (COPD Gene/Spiromics)

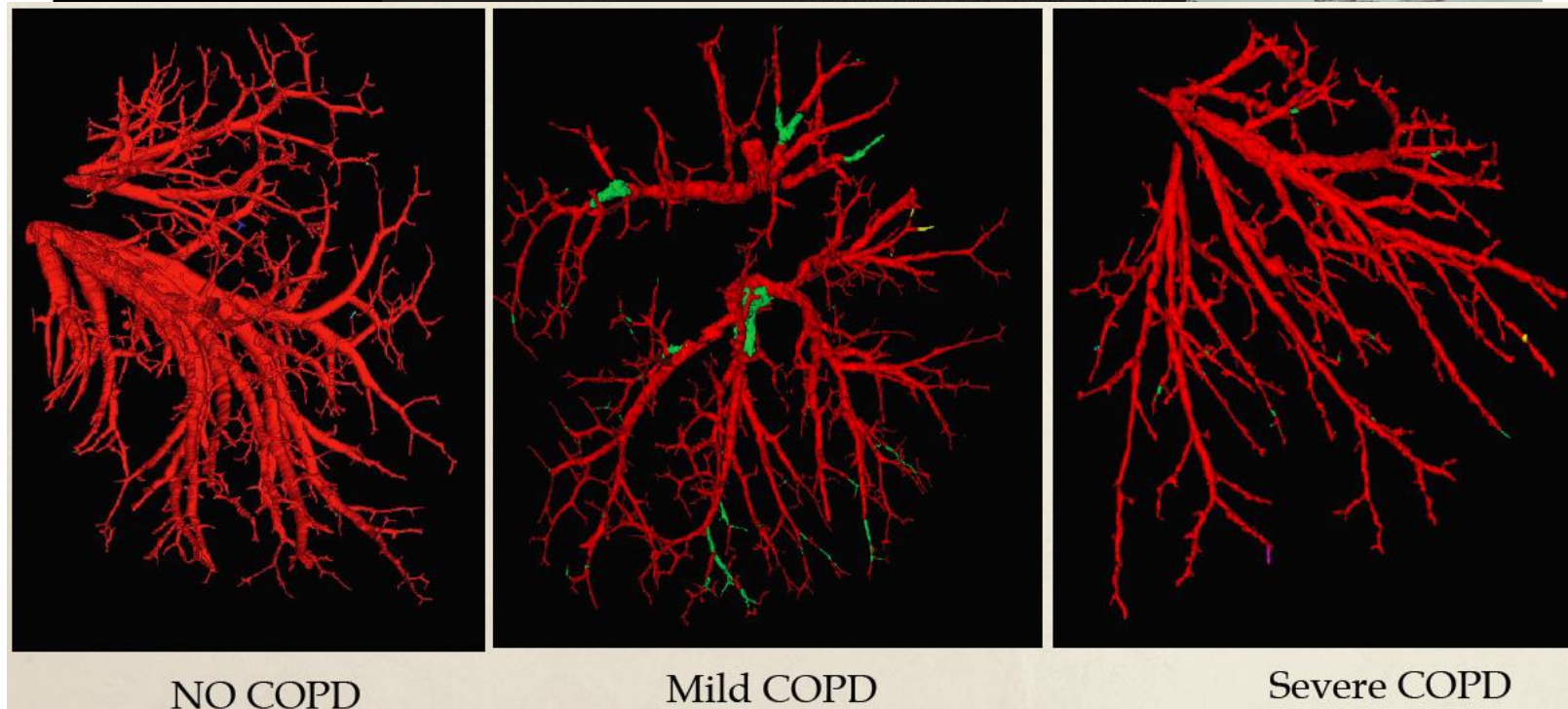
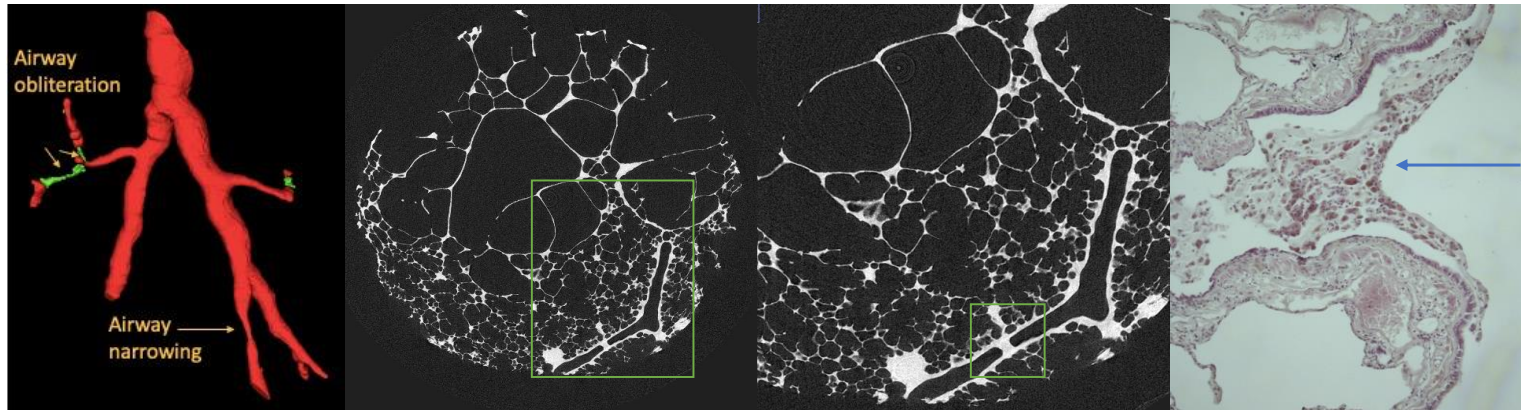
- **mMRC ≥ 2 : 23.5% vs 3.7%**
- **SGRQ score: 17 vs 3.8**
- **6MWD: 447m vs 493m**
- **Emphysema or airway thickening on CT: 42.3%**
- **More frequent respiratory events requiring OCS or ABs in those with chronic bronchitis: 0.3/yr vs 0.1/yr**
- **Elevated sputum mucin concentrations**

Pre-COPD = precursor voor COPD

- **Pre-COPD:** Respiratory symptoms and/or structural lung lesions and/or physiological abnormalities without airflow obstruction.

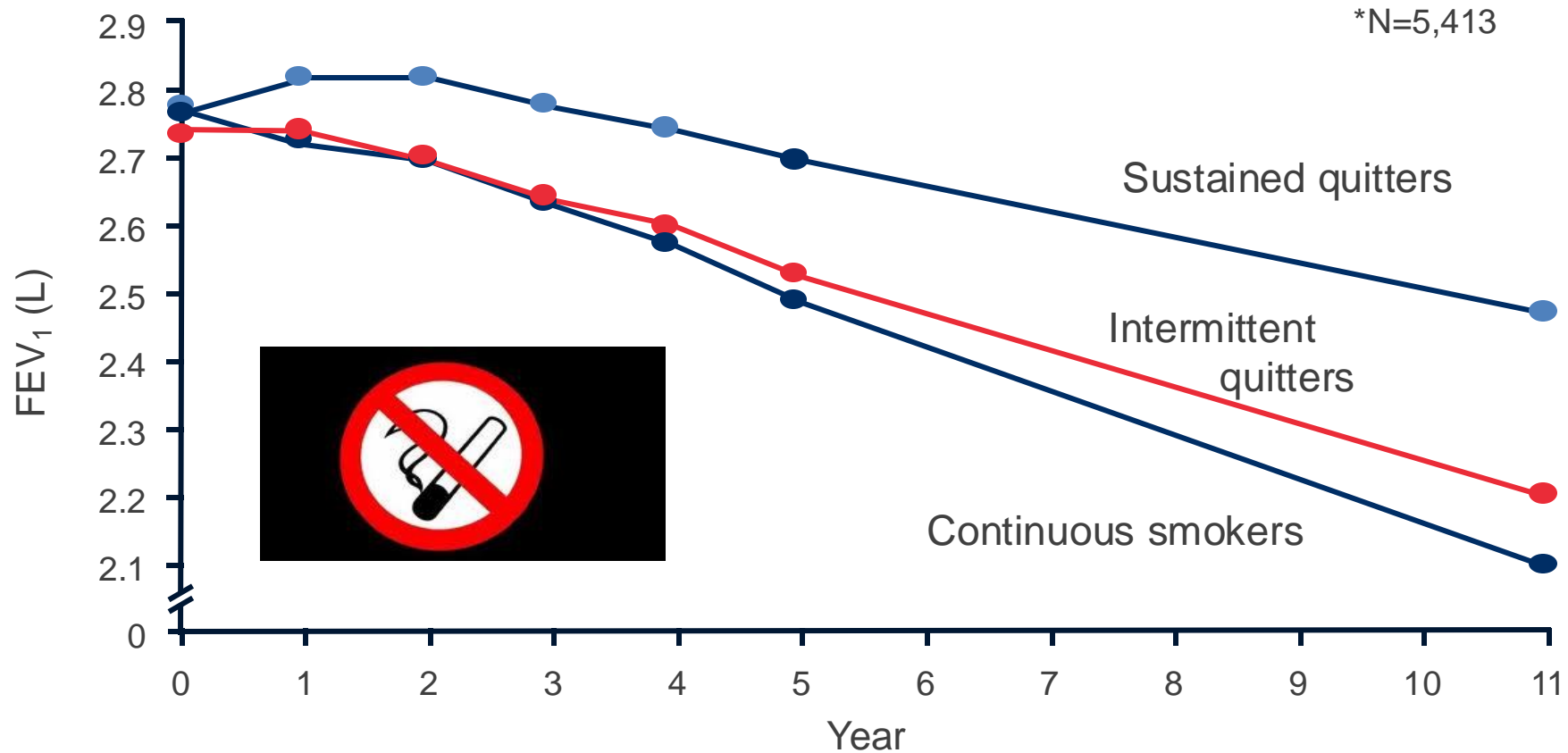


Onderzoek van kleine luchtwegen in pre-COPD (SILENT Study)



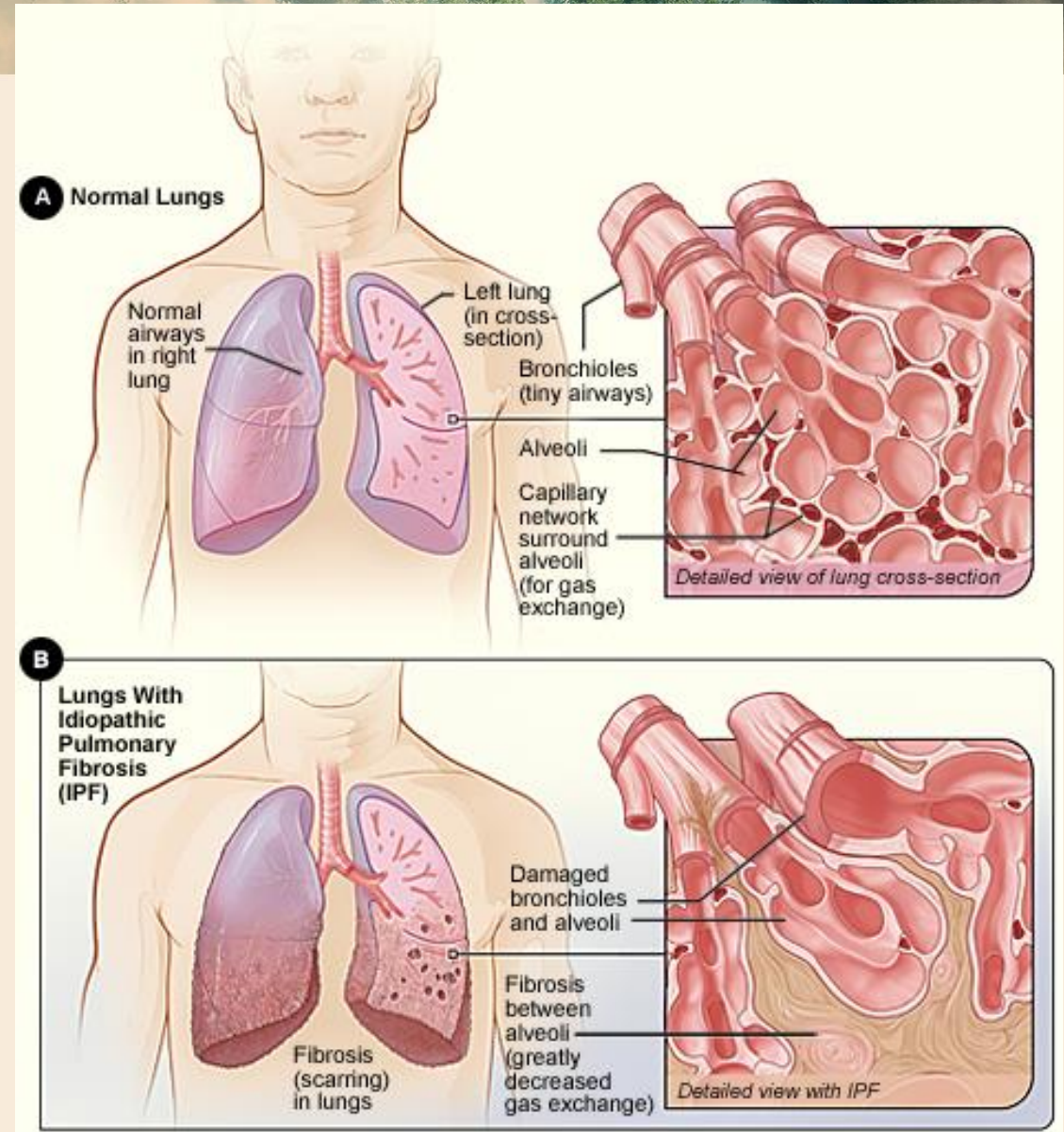
**40% verlies van kleine
luchtwegen in pre-COPD**

Benefit of smoking cessation: Lung Health Study 11-year results

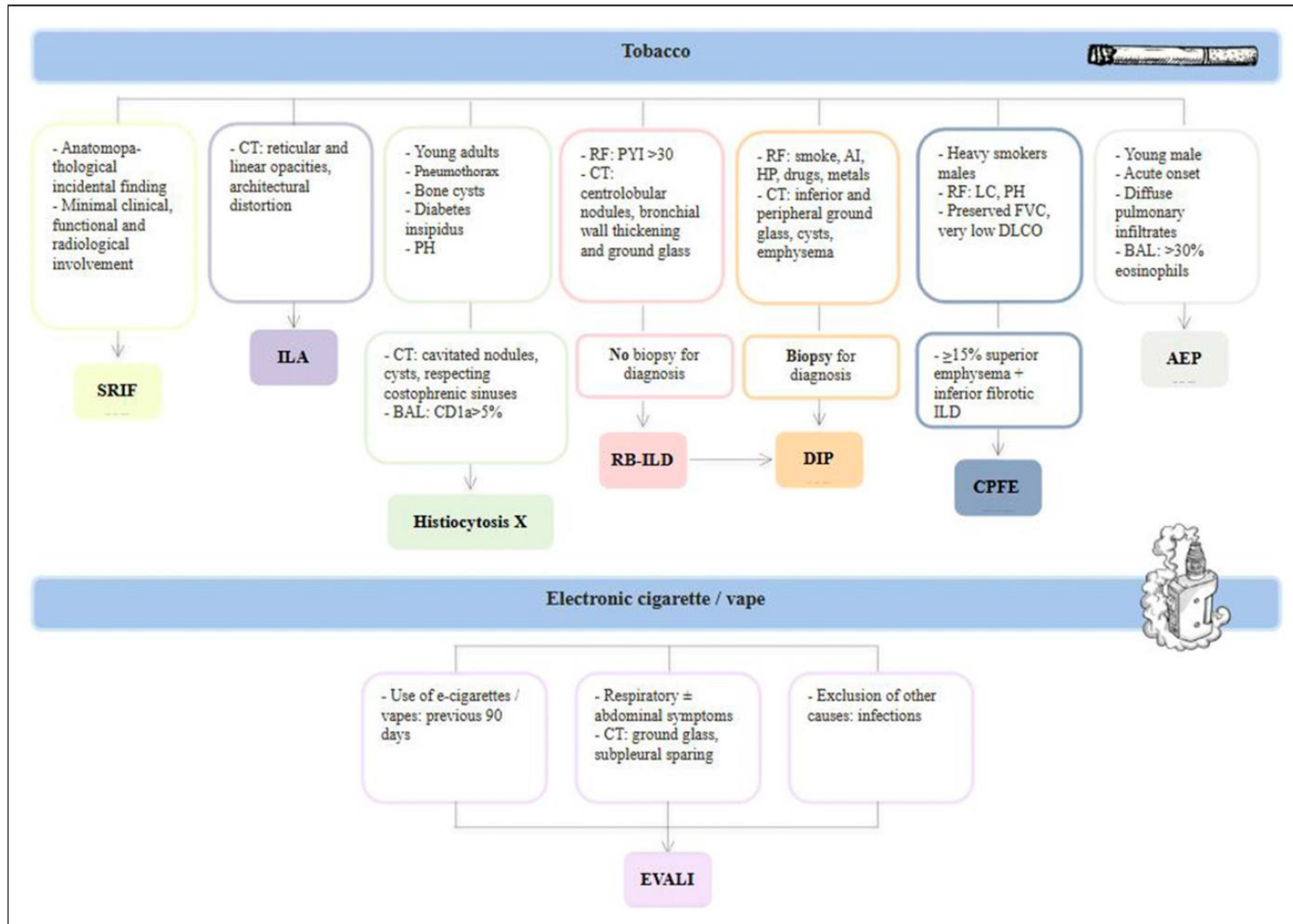


Smoking cessation reduces COPD symptoms, exacerbations and mortality risk.

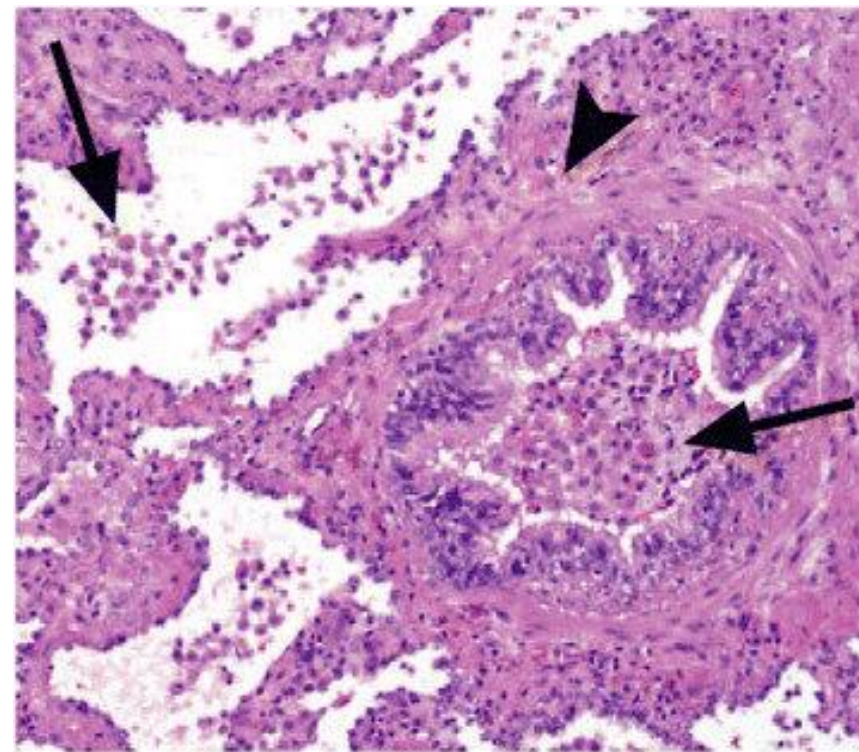
Roken gerelateerde Interstitiële Longziekten (ILD)



Roken gerelateerde ILD



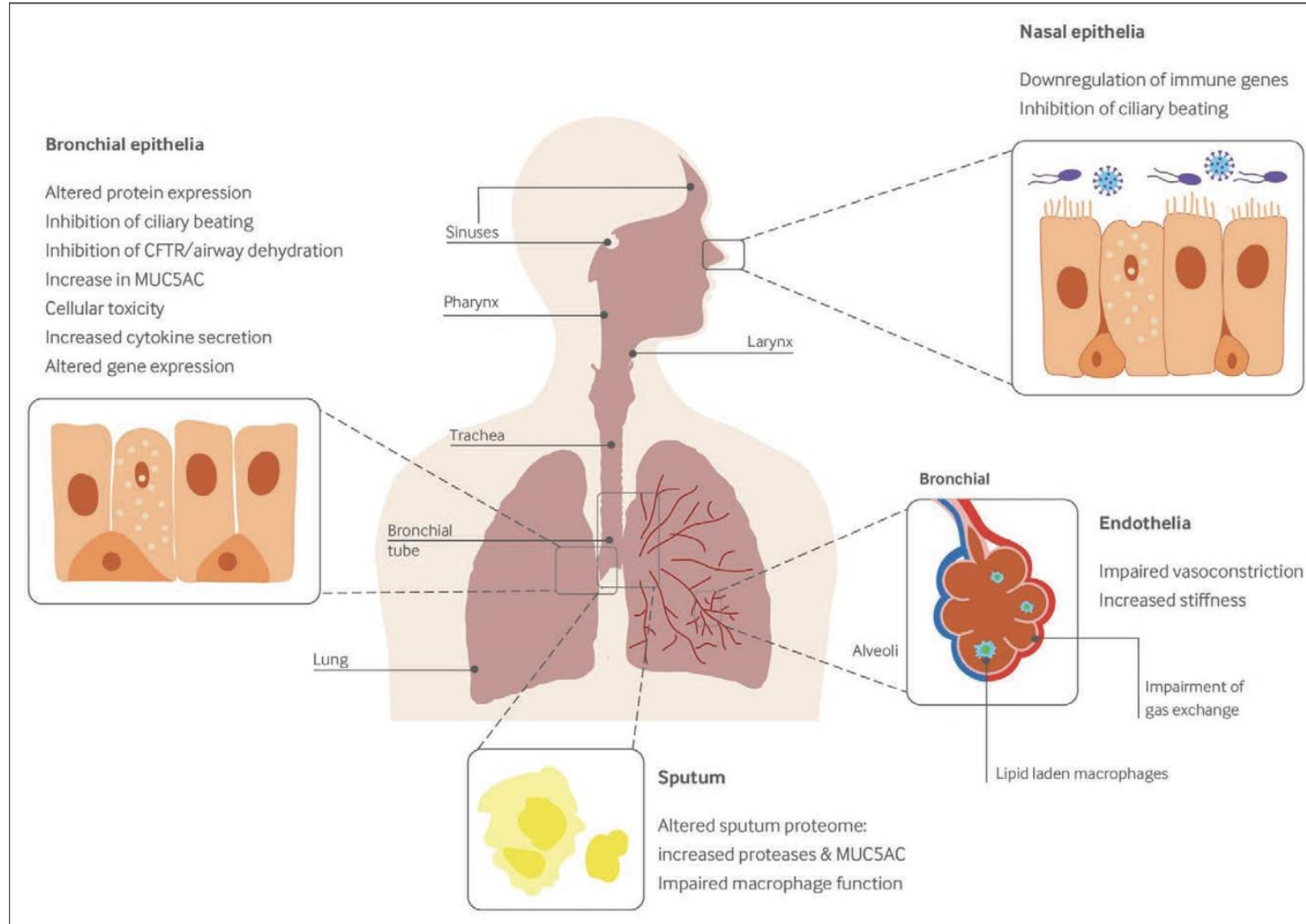
RB-ILD



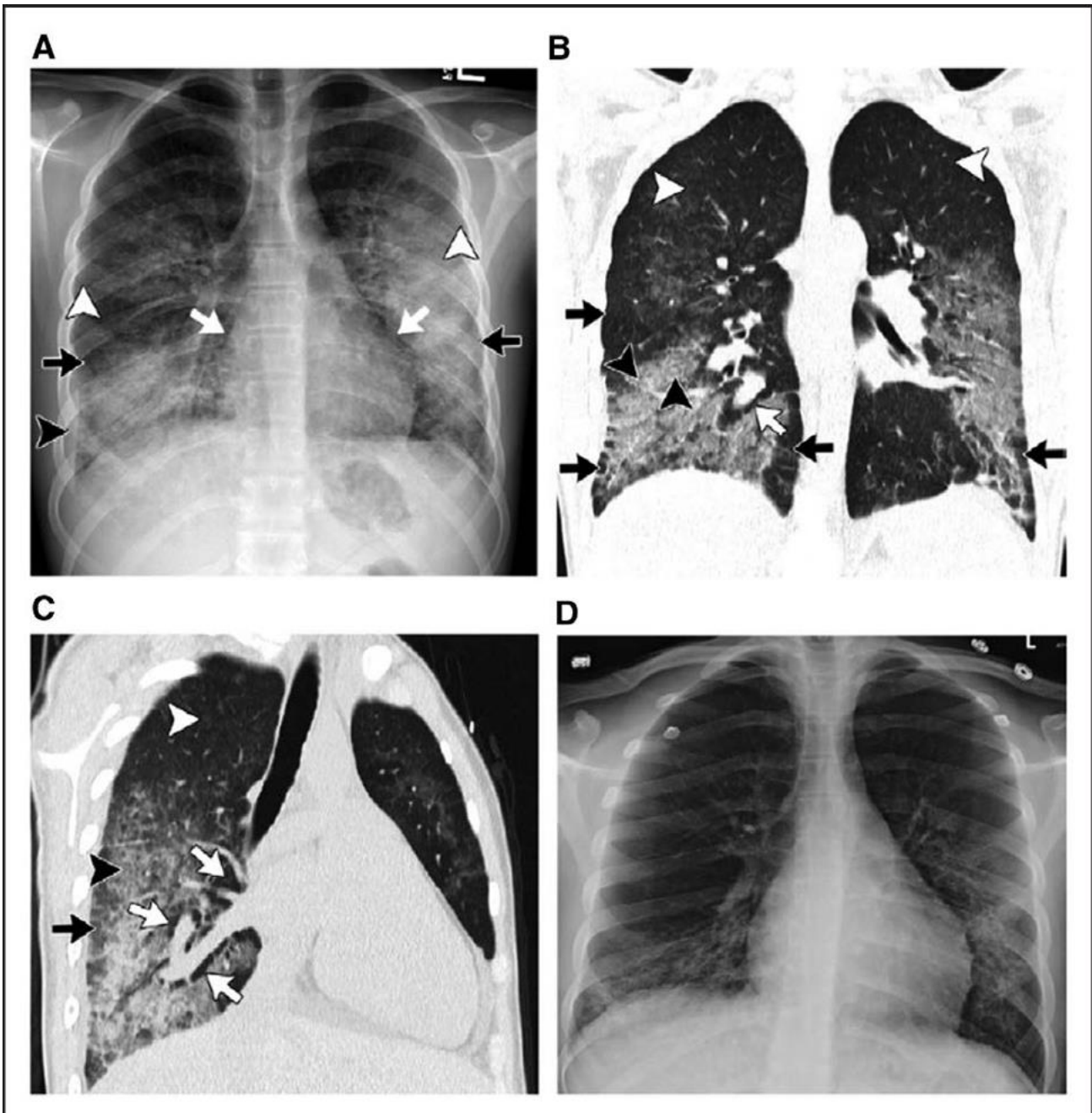
Vape epidemie



EVALI = E-cig, or vaping, product use associated lung injury

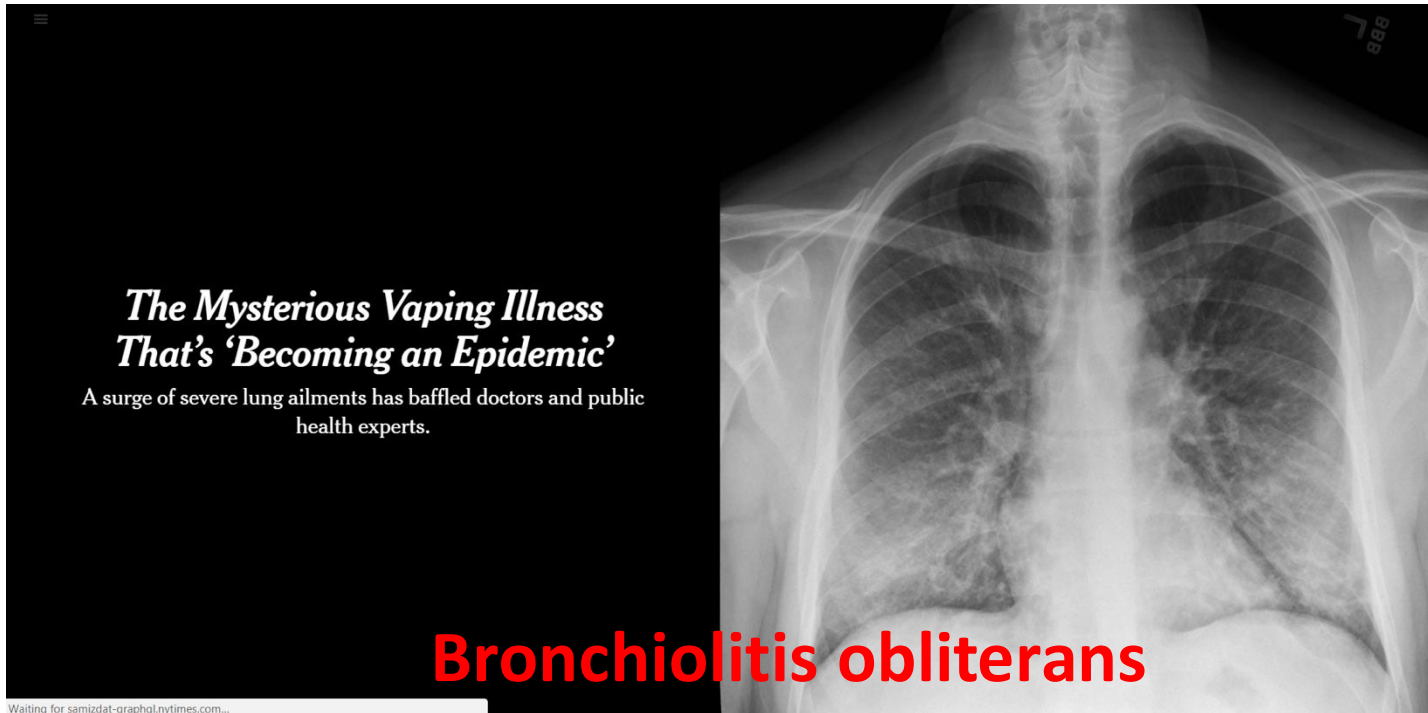


Lange termijn effecten?



EVALI with organizing pneumonia

'Popcorn lung': A dangerous risk of flavoured e-cigarettes



Even though we know that **diacetyl** causes popcorn lung, this chemical is found in many **e-cigarette flavors** <https://t.co/w3G3WJQMdM>
— American Lung Assoc. (@LungAssociation) [July 8, 2016](#)



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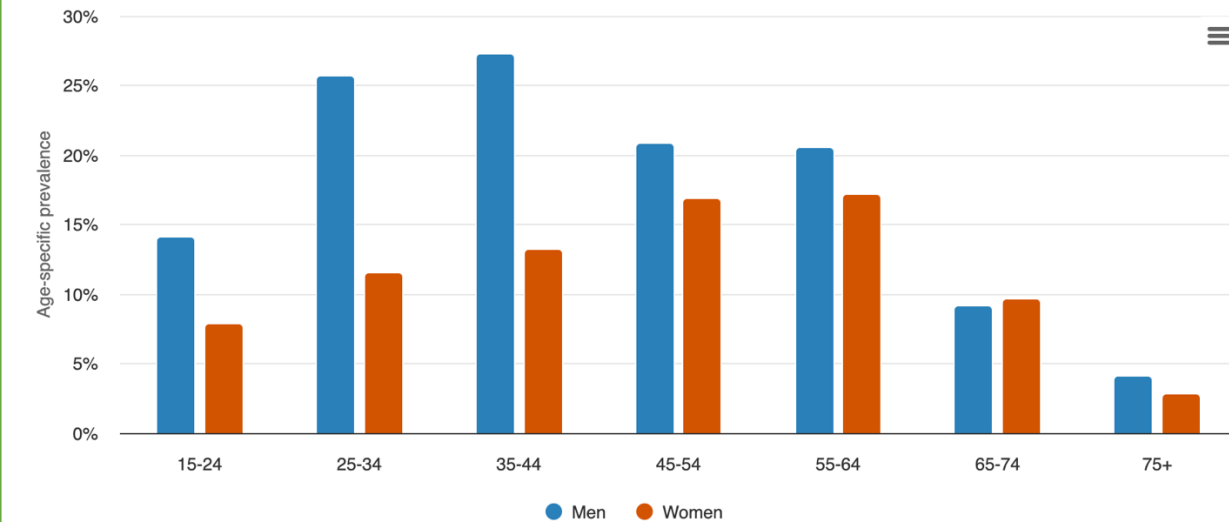
(Primaire) preventie van
roken gerelateerde
longziekten



Rookgedrag in België

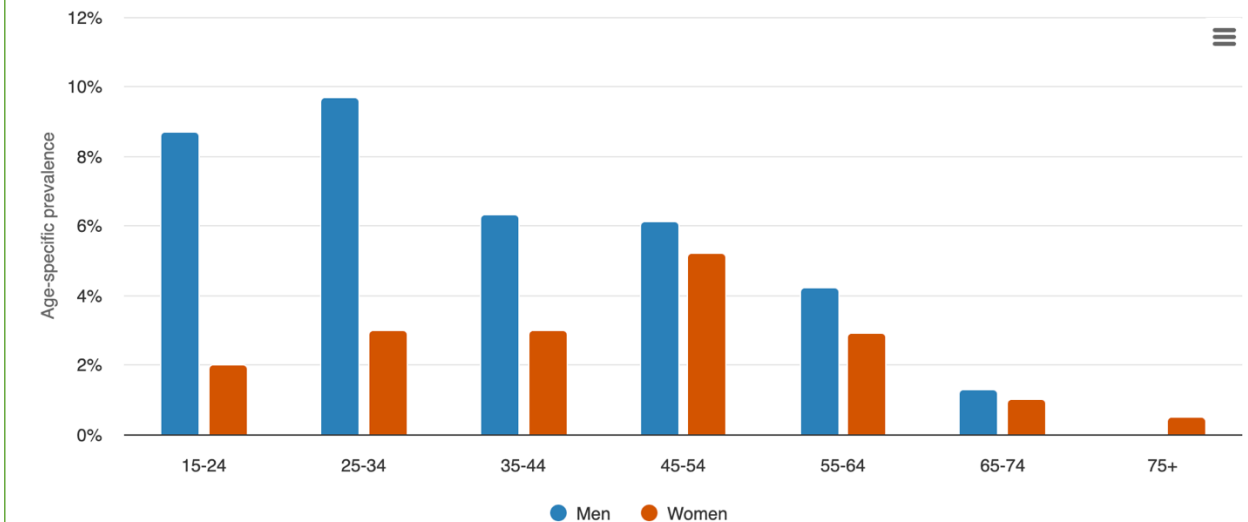
Prevalence of daily smoking among people aged 15 and over, by age and sex, Belgium, 2018

Source: [Health Interview Survey, Sciensano \[1\]](#)



Prevalence of regular (at least 1x/week) e-cigarette use among the population aged 15 years and over, by age group and sex, Belgium, 2018

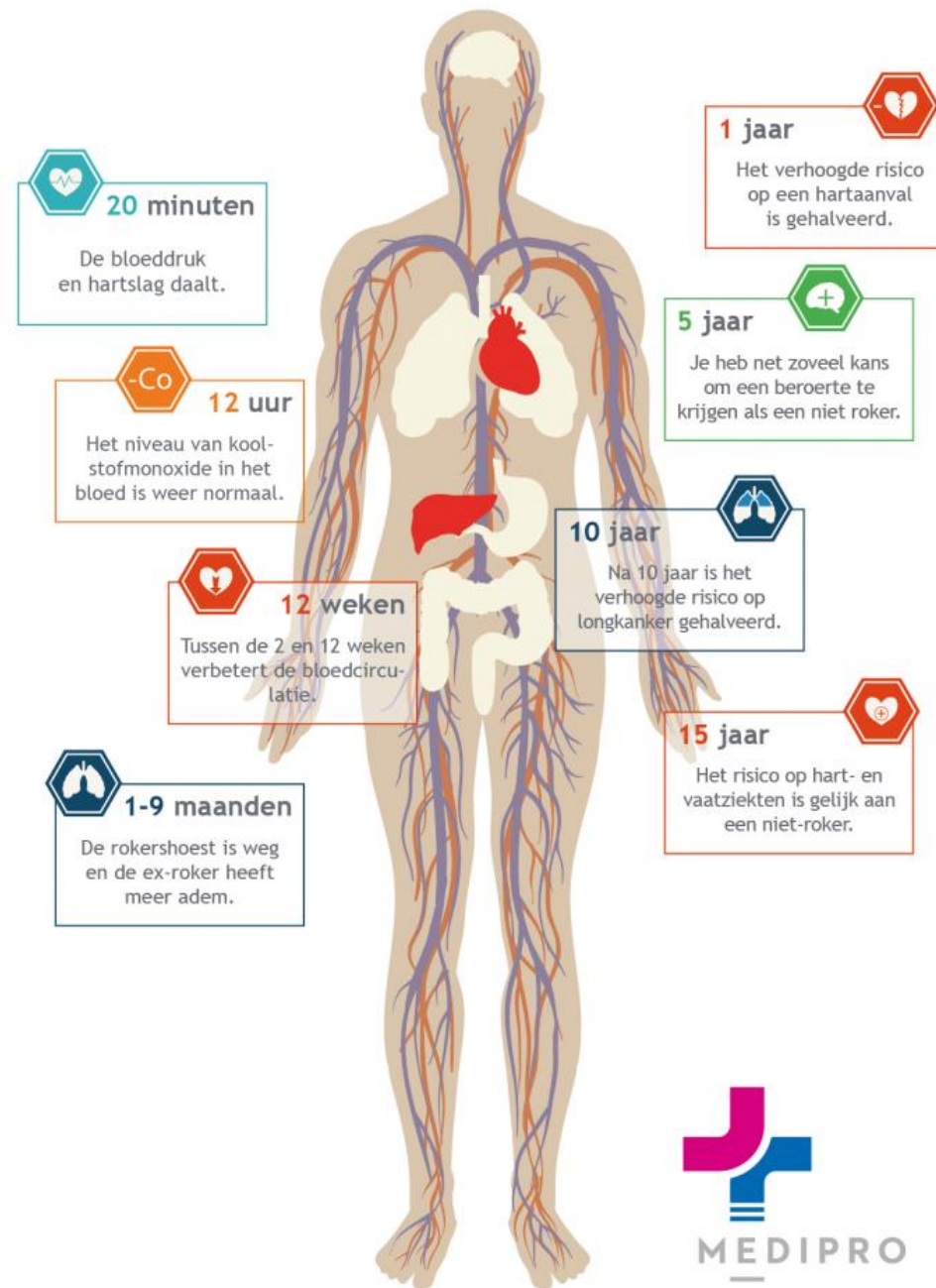
Source: [Health Interview Survey, Sciensano \[1\]](#)



<https://www.healthybelgium.be/en/health-status/determinants-of-health/tobacco-use>

- 15% of the population were daily smokers in 2018 in Belgium, lower than the EU-15 average. This proportion is higher in men (18%) than in women (12%) and higher in Wallonia (18%) than in Brussels (16%) and Flanders (13%).
- The prevalence of daily smoking has decreased by 40% between 1997 and 2018.
- 4.1% of the population were regular users of e-cigarettes in 2018 in Belgium, higher than the EU-15 average.
- Socio-economic disparities are large in smoking behavior: the proportion of daily smokers and electronic cigarette users is 2.4 times smaller in the higher versus the lower educated people.
- Among adolescents aged 11-18, 17% have at least tried tobacco and 3.8% are daily smokers.
- Daily smoking has significantly decreased among adolescents between 2006 and 2018.
- In 2018, more adolescents have tried e-cigarettes than conventional cigarettes.

De effecten van stoppen met roken



Vapen en roken onder tieners

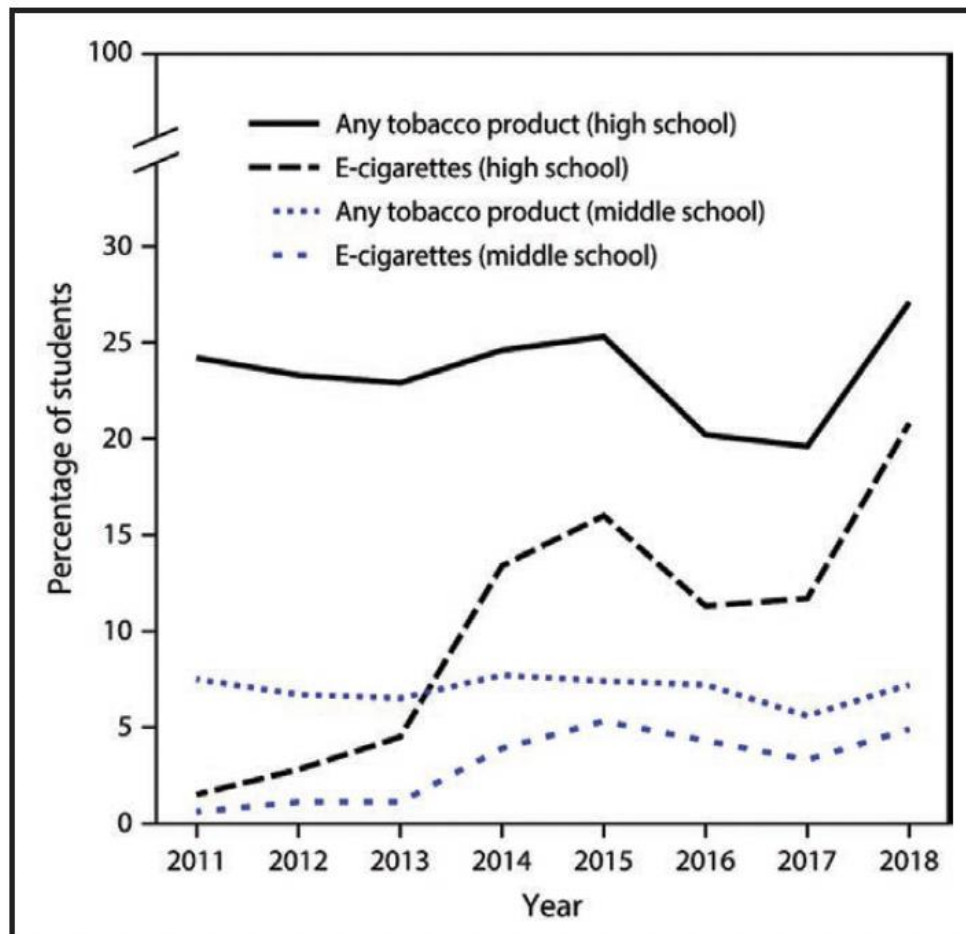


Figure 1. Percentage of middle and high school students who currently use electronic cigarettes and any tobacco product, National Youth Tobacco Survey, United States, 2011 to 2018.¹¹





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Thank you!