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Introduction

The 2022 EU Council Recommendation asks all 27 Member States to explore low-dose CT screening. Each must first decide whom to invite.

Eligibility depends on **lifetime** smoking history, not current smoking:

Ages 50–79	Sweden	Portugal
Currently smoking	12.7%	13.0%
Eligible, USPSTF-2021	9.9%	19.0%

Methods

1. Surveys → prevalence

2.37 million records, 5 European surveys and national data, 1979–2024

2. Prevalence → smoking histories

Initiation, intensity and cessation reconstructed for every cohort, country and sex. Surveys see only survivors, so mortality follows Human Mortality Database life tables and **EPIC-Europe** hazard ratios.

3. Histories → eligible population

USPSTF-2021 ≥20 pack-years, currently smoking or quit within 15 years.

PLCom2012 6-year lung cancer risk ≥1.51%.

Both criteria: ages 50–79

Results

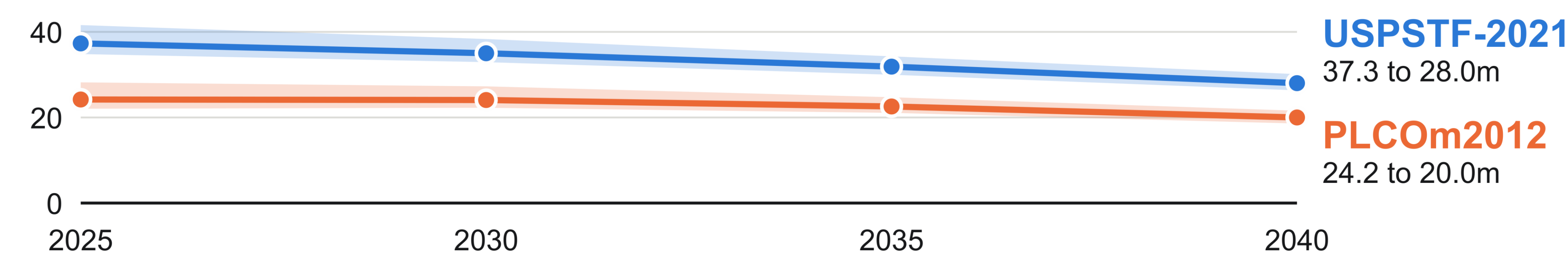
37 → 28

million meet **USPSTF-2021**, 2025 → 2040

24 → 20

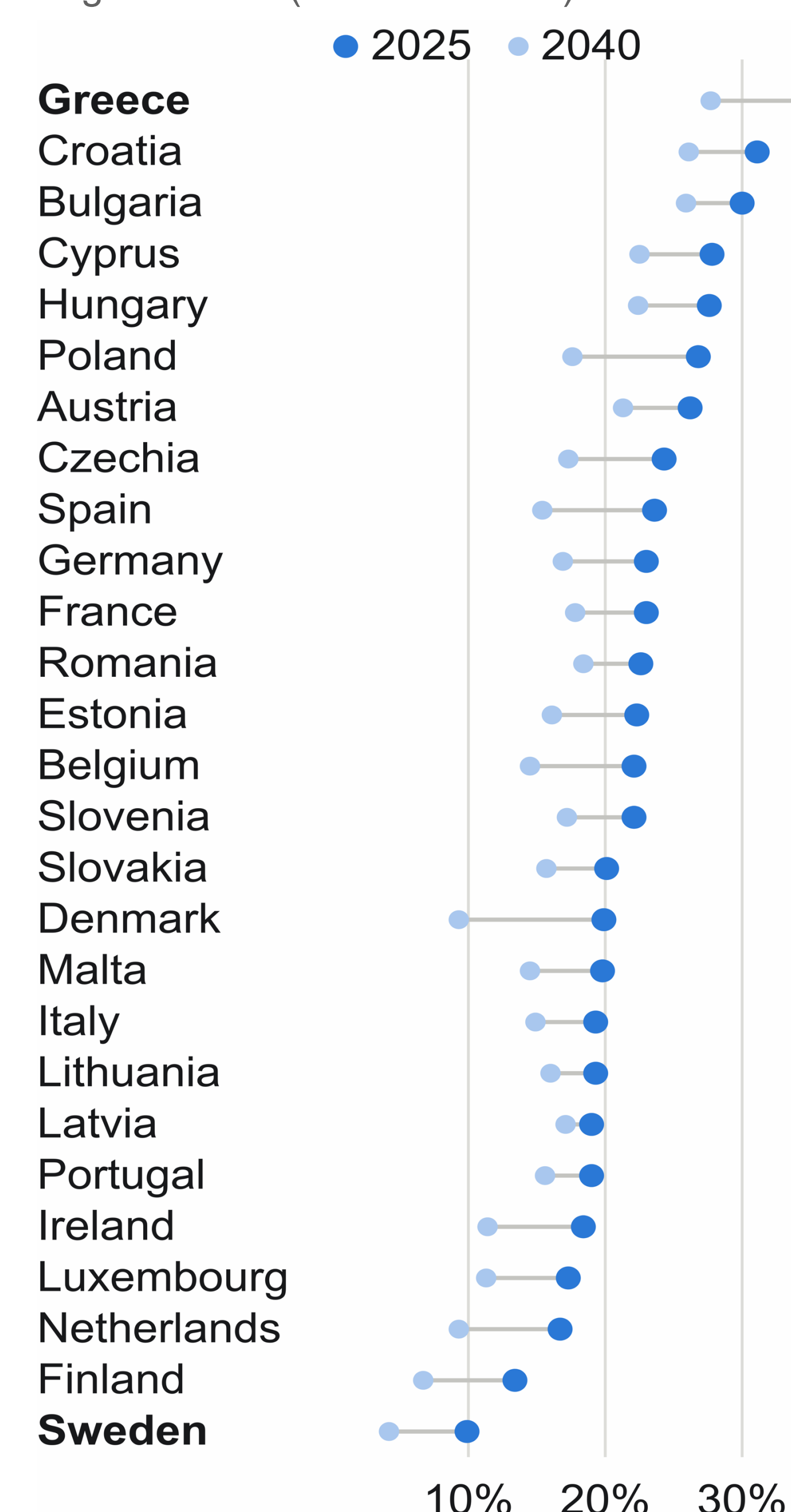
million meet **PLCom2012**, 2025 → 2040

EU-27, millions aged 50–79. Shaded areas are 95% credible intervals



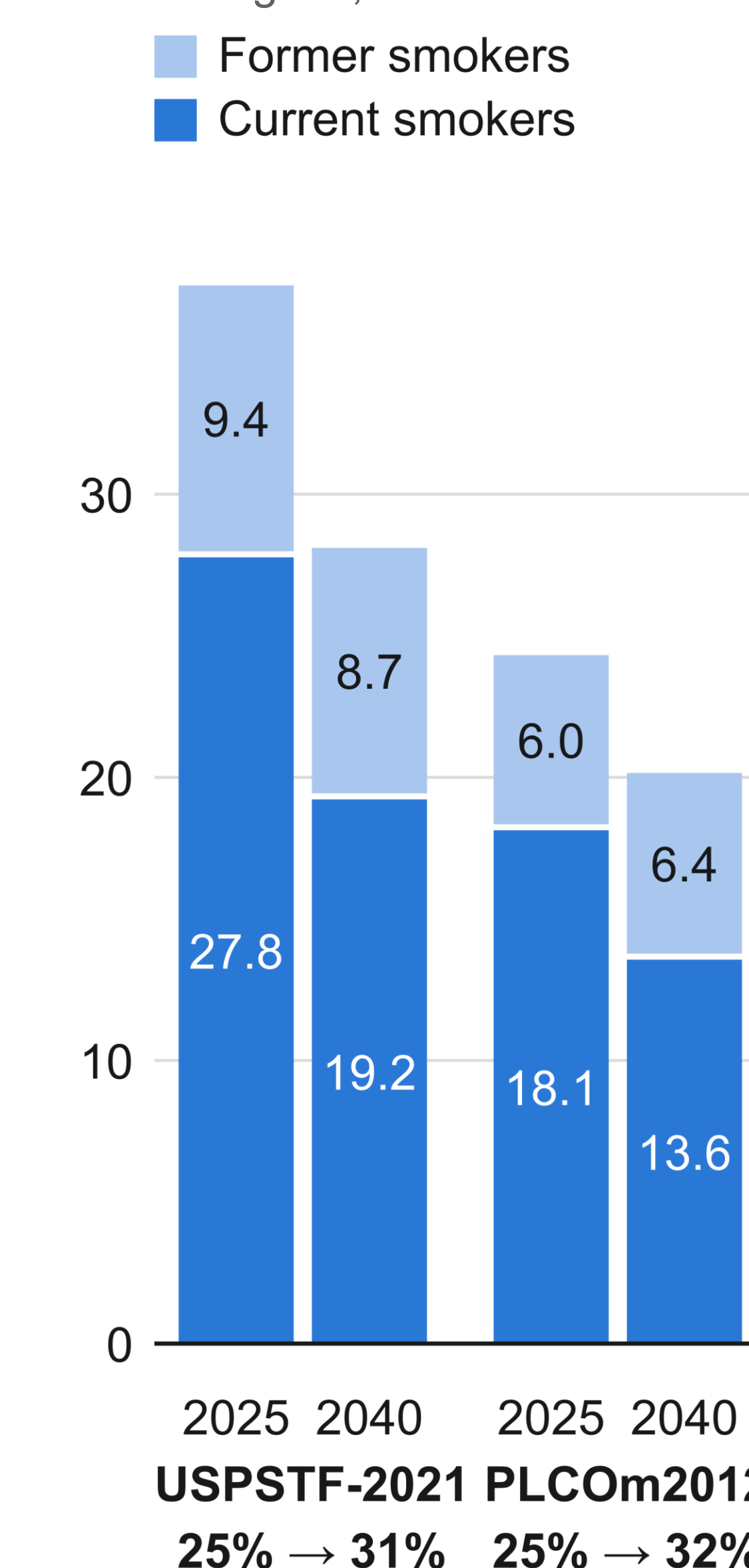
By Member State

Eligible share (USPSTF-2021)



By smoking status

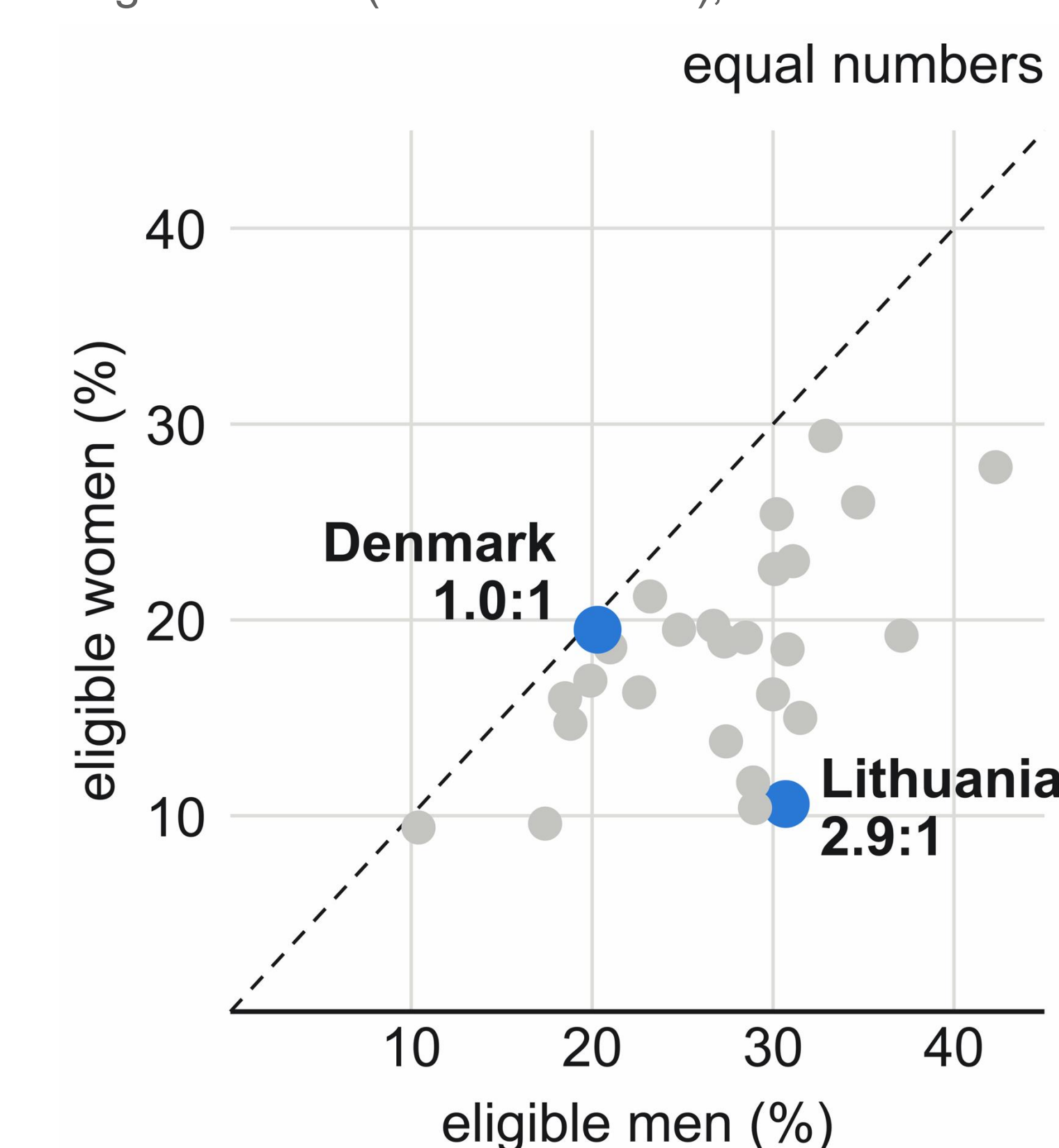
Millions eligible, EU-27



Below bars: former smokers as % of eligible

By sex

Eligible share (USPSTF-2021), 2025



Implications

Country and criterion both set the size

Eligibility varies threefold between states, and the criterion moves a national total by 35–76%. Each state must weigh that choice against national capacity and cost-effectiveness.

No state can wait out its burden

Under both criteria eligibility falls fastest where it is already lowest: by 2040 the nine highest states lose about a fifth, the nine lowest a third. Even Sweden, which falls furthest, still has two-fifths as many people eligible in 2040 as today.

Smoking converges, eligibility does not

Ever-smoking is equalizing between the sexes. Women smoke less intensely and for fewer years, so eligibility stays male-skewed in all 27 Member States.

Member States can scope their own eligible population, under either criterion, at the EU-SHG dashboard.



Scan to open the EU-SHG dashboard.

Claude Opus 5 was used for language editing; the authors reviewed and take responsibility for all content.