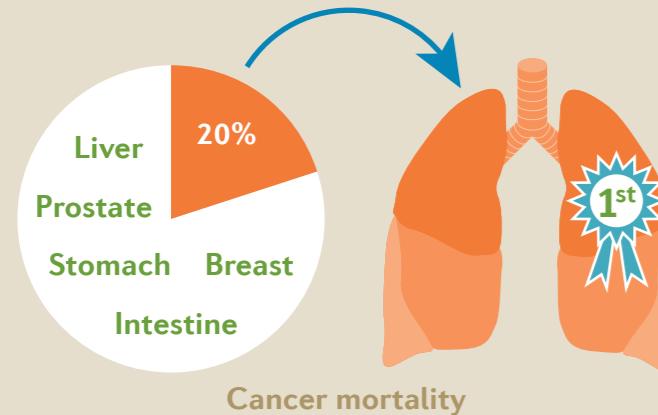


Non-small-cell lung cancer (NSCLC) is the most common type of lung cancer. It comprises different histological tumour types, including adenocarcinoma, squamous cell carcinoma and large-cell carcinoma.

## EPIDEMIOLOGY

With 1.8 million diagnoses and 1.6 million deaths every year, lung cancer is one of the most common cancers and the leading cause of cancer-related deaths worldwide. Almost 85% of these lung tumours are NSCLC. The incidence is slowly but steadily decreasing in the developed world owing to rigorous smoking regulations but, unfortunately, incidence is rising in other regions, including South America, Eastern Europe and China.



## DIAGNOSIS

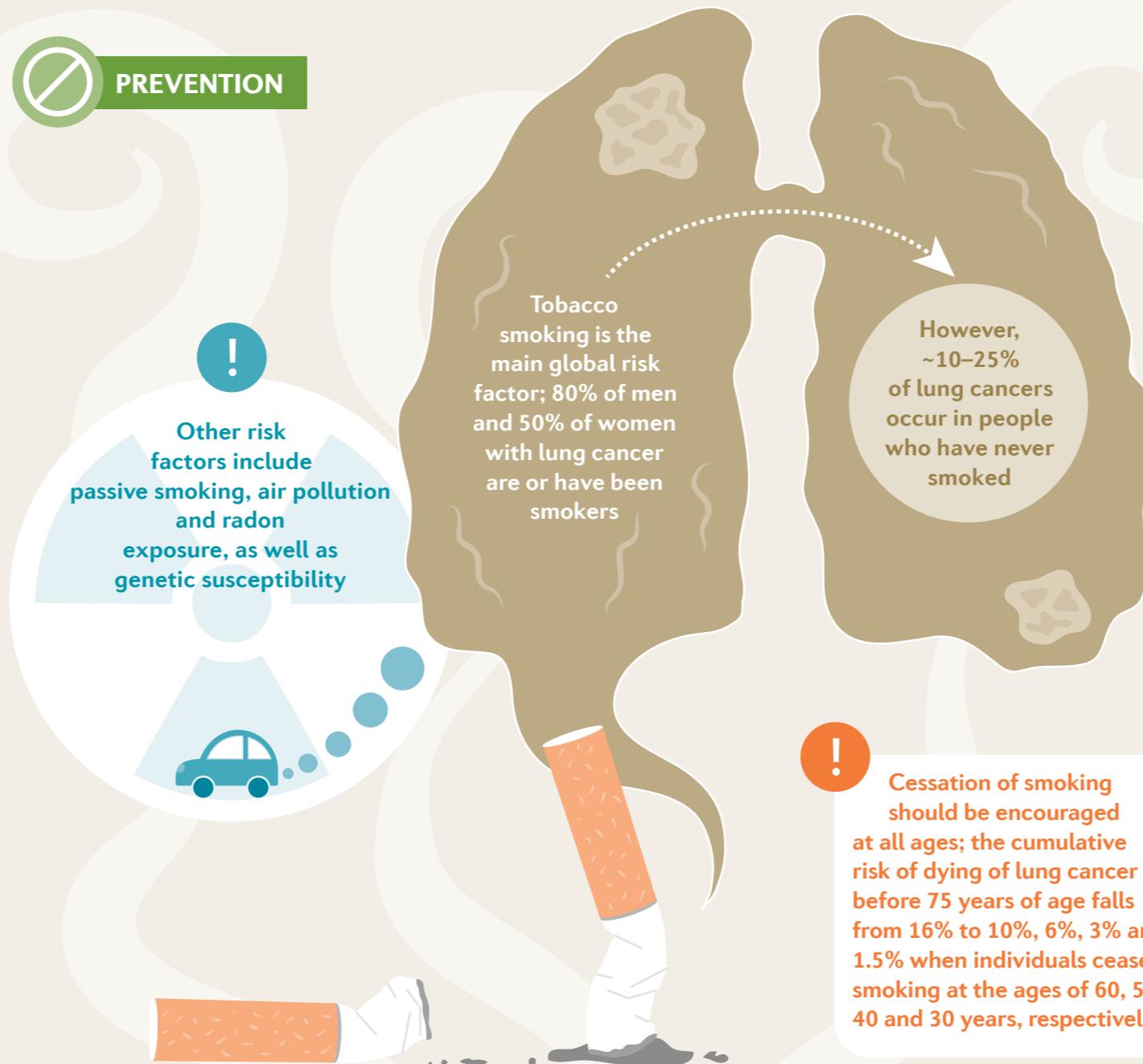
Absence of overt clinical symptoms and lack of effective screening programmes often delay diagnosis until symptoms develop in the later stages, which limits treatment options. Diagnosis involves locating the tumour by imaging techniques (X-ray, CT and PET) and collecting a biopsy sample to classify and stage the tumour.

## PREVENTION



## PREVENTION

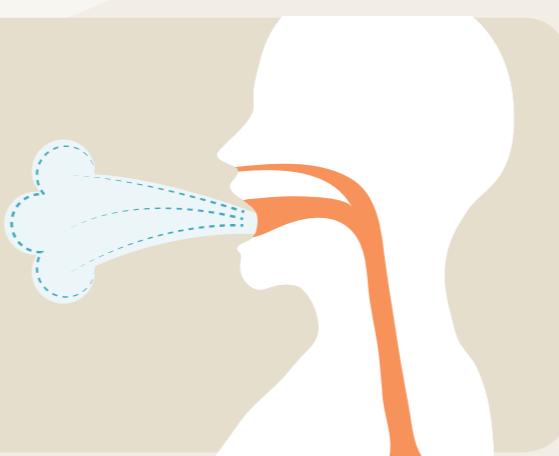
Other risk factors include passive smoking, air pollution and radon exposure, as well as genetic susceptibility



## QUALITY OF LIFE

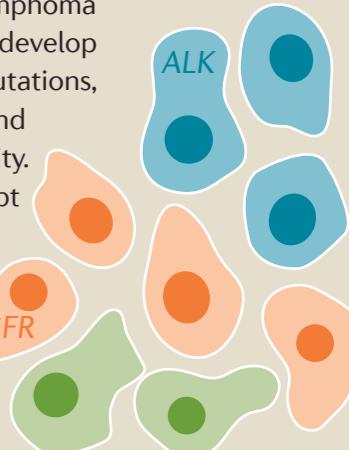
Owing to the late detection of disease, life expectancy for most patients is very poor; median overall survival is only 1 year after diagnosis. In addition, patients experience disease-related symptoms (such as cough,

dyspnoea, pain, anorexia and fatigue) and adverse effects of treatment. Consequently, palliative care has a major role in the treatment strategy and needs to be introduced early.



## MECHANISM

NSCLC development is driven by genetic mutations, which are predominately caused by carcinogen exposure. Tumours of smokers contain approximately 10 mutations per megabase of DNA; tumours of people who never smoked have 10-times fewer mutations. Important driver mutations have been detected in epidermal growth factor receptor (EGFR) and anaplastic lymphoma kinase (ALK). Cells might develop independent (branch) mutations, leading to intratumour and intertumour heterogeneity. In addition, tumours adapt to their environment by producing growth factors and other factors to evade the immune system.



## MANAGEMENT



NSCLC is a heterogeneous disease, and treatment should be adapted to the disease stage and tumour characteristics. Besides surgical resection and radiochemotherapy, drugs targeting specific driver mutations, if present, have a major role in management. Tyrosine kinase inhibitors against EGFR, ALK and ROS1 are available. As all tumours eventually develop resistance, second-line and third-line inhibitors have been or are currently under development. These drugs are either active against the resistant proteins or even target them specifically. Other strategies include inhibition of vascular endothelial growth factor (VEGF) and immunotherapy.

Screening with low-dose CT might be useful in a high-risk population: smokers over 55 years of age