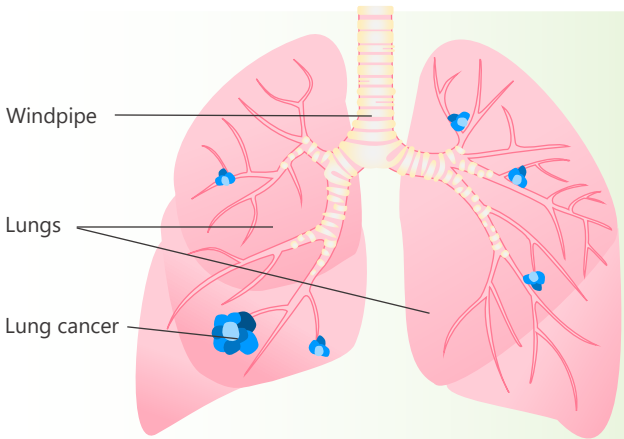
TREATMENTS FOR EGFR MUTATION-POSITIVE ADVANCED NON-SMALL-CELL LUNG CANCER

ACE agency for care effectiveness

Around **1,600 people** are diagnosed with lung cancer **every year**, making it one of the **most common** cancers in Singapore. It is also one of the **leading causes** of cancer-related **deaths** locally.[1]

Two in three patients[1] have cancer that has spread outside the lungs to other parts of the body, which is known as **advanced lung cancer**.

There are different types of lung cancer depending on which cells are affected. Non-small-cell lung cancer or **NSCLC** is the most common type.



Doctors may send samples of the cancer for **testing** to determine which treatment will work best.

Some patients with NSCLC have an abnormality (**mutation**) in the Epidermal Growth Factor Receptor (**EGFR**) gene which helps the cancer grow. This is called **EGFR mutation-positive** NSCLC.

How is NSCLC **treated**?

Advanced NSCLC options include:

- Chemotherapy
- Radiotherapy
- Targeted therapy
- Immunotherapy +/- chemotherapy

Targeted therapy are medicines that are **effective** against cancers with **specific** genetic mutations.

There are **5** targeted therapies approved for patients who have **advanced** NSCLC with an EGFR mutation. These drugs are known as EGFR tyrosine kinase inhibitors (**EGFR-TKIs**).

- Afatinib
- Dacomitinib
- Erlotinib
- Gefitinib
- Osimertinib

Legend: Tablets

Published studies show that all 5 EGFR-TKIs are **effective** treatments for EGFR mutation-positive NSCLC. They have **different** side effects from each other.

- For patients with **newly diagnosed NSCLC**, **afatinib, dacomitinib** and **osimertinib** are likely to be **more effective** than erlotinib and gefitinib in **extending** the length of time they can live without their cancer getting worse.
- While on treatment, about half of patients develop **another mutation** (T790M) in the EGFR gene which causes some EGFR-TKIs to **stop working** (resistance). If this happens, **osimertinib** can be used if the patient has not had it before.

ACE reviewed all available clinical evidence and received clinical advice from doctors for each EGFR-TKI. ACE also negotiated prices with the companies.[2,3]

Value for money (cost-effectiveness) of most EGFR-TKIs was improved at the prices proposed by the companies.

For **eligible** patients who need osimertinib, the company will provide some **free tablets** to help reduce their treatment costs.

Cash or MediSave needed **every month** after subsidy and MediShield Life for a **middle-income patient** receiving **outpatient** treatment at **public hospitals***:

For patients with newly diagnosed NSCLC		
Erlotinib	**Less than $50**	Subsidised ✓ MediShield Life: $200 ✓
Gefitinib	**Less than $50**	Subsidised ✓ MediShield Life: $200 ✓
Dacomitinib	**$50 to $100**	Subsidised ✓ MediShield Life: $600 ✓
Afatinib	**$100 to $200**	Subsidised ✓ MediShield Life: $600 ✓
Osimertinib	**$900 to $1,000**	Subsidised ✗ MediShield Life: $2400 ✓
For patients whose cancer is resistant to previous therapy due to the T790M mutation		
Osimertinib	**$100 to $200**	Subsidised ✓ MediShield Life: $2400 ✓

Afatinib, **dacomitinib**, **erlotinib** and **gefitinib** (for patients with newly diagnosed disease), and **osimertinib** (for patients whose cancer is resistant to previous therapy due to the T790M mutation) were **recommended** for government funding[4].

Talk to your **doctor** to discuss which treatment is suitable for you. You can also speak to a **medical social worker** if you need further financial assistance, or you can reach out to **local patient support groups**[5] if you want to meet people with similar experiences.

* Expenses will differ according to the amount of medicine that each patient needs and does not include other costs for doctor consultations, medical tests etc. MediSave withdrawal is capped at $600 per month for these treatments. For Singaporeans who are eligible for subsidy, treatment costs will be subsidised by 40% to 75%. For subsidised drugs, expenses have been calculated using prices proposed by the companies including patient assistance programmes.

Sources:
1. Health Promotion Board National Registry of Diseases Office. Singapore Cancer Registry Annual Report 2019. 28 Jan 2022.
2. ACE Technology Guidance, dacomitinib for treating EGFR mutation-positive non-small-cell lung cancer. 17 Aug 2021.
3. ACE Technology Guidance, osimertinib for treating EGFR mutation-positive non-small-cell lung cancer. 12 Jul 2022.
4. Ministry of Health, Singapore. Cancer Drug List.
5. Lung Cancer Education and Advocacy for Patients (LEAP), Singapore Cancer Society.

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