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Lung cancer treatment in India and the role of precision oncology

06 July 2026 | Views | By Dr Kumar Prabhash, Professor, Medical Oncology and Head of the Solid Tumour Unit, Tata Memorial Hospital, and Director, Homi Bhabha Cancer Institute, Muzaffarpur

Precision oncology has emerged as a key pillar of modern lung cancer treatment protocols



India has about 80,000 new cases of lung cancer reported every year, and it's slowly turning into a serious public health challenge. While the incidence of lung cancer continues to rise, it is equally important to recognize the multiple barriers patients face in accessing the right care. From challenges in securing an early diagnosis, accessing advanced treatment options to finding affordable care, patients encounter many obstacles during the course of their treatment.

In the last 10-15 years, the treatment landscape and the approach towards lung cancer has remarkably changed. The conventional one-size-fits-all approach that mainly centred around chemotherapy has gradually given way to much more targeted and personalized treatment strategies. With advancement in science and technology, there's a much deeper understanding about the genetics and molecular characteristics of tumours that allows clinicians to minimize unnecessary treatment-related toxicity.

Precision oncology has emerged as a key pillar of modern lung cancer treatment protocols. It offers an opportunity to improve patient survival outcomes, avoid over treatment and ineffective therapies, and make cancer care more targeted, personalized and effective. While precision oncology has become a standard of care globally, bringing this advanced treatment approach to India's smaller cities and towns still has a long way to go.

Shift from standard treatment to precision medicine

Lung cancer treatment has conventionally followed a standard approach where treatment approaches are mainly based on the stage of the disease and the histological subtype. For many decades, chemotherapy has served as the primary treatment modality. Precision medicine is slowly changing this.

International datasets have already demonstrated the value of genomic testing in guiding targeted therapies. We now have robust data from the Indian population which shows similar benefits. With genomic testing, oncologists can now identify specific genetic drivers within a tumor, and match patients with targeted therapies. The clinical impact of this shift is significant

- **Survival rate increases** - Average survival increases from months to years. What was once a 6-to-8-month prognosis can extend to 60 or 70 months, with specific patient subgroups surviving 8 to 10 years and beyond.
- **Improved quality of Life:** Unlike conventional treatment regimens like chemotherapy, modern targeted therapies are largely oral medications with fewer side effects. Because these treatments are non-toxic, patients maintain their daily routines, continue working, and have a better quality of life.

Barriers to accessing precision medicine

As per Lancet Regional Health, there are 66,279 deaths annually in India with the number of cases somewhere around 72,510. This high mortality rate is a clear indication of the urgent need for personalized treatment approaches. Genomic testing addresses this challenge by offering targeted therapies based on a patient's unique genetic mutations. However, there are a number of barriers for widespread access and adoption

- Lack of awareness among clinicians as well as the public about the need for genomic testing and its impact on patient outcomes
- Lack of skilled personnel for conducting these tests. A lung biopsy requires specialized technical skill and specialized infrastructure. Most Tier-II and Tier-III cities lack local facilities capable of processing these advanced diagnostic tests, requiring samples to be shipped to distant, specialized laboratories.
- Most of these tests are not easily accessible in government hospitals and it's excluded from insurance policies. This places the financial burden entirely on patients which makes them hesitant to opt for these tests.

Removing barriers to adoption

One of the ways to remove barriers to adoption is by making the test much more easily accessible to patients. To do this, the Cancer Research and Statistics Foundation (CRSF) offers 'LuNGS Alliance', a free Lung NGS (Next Generation Sequencing) biomarker testing for lung cancer patients across India. This initiative is backed by leading pharmaceutical companies AstraZeneca, Pfizer, BMS, Johnson & Johnson, Eli Lilly and Roche, with precision oncology company 4baseCare serving as the official lab partner.

There have been a number of initiatives by the government, and many steps have been taken towards increasing access to affordable treatment. Ayushman Bharat is a key initiative that has made a significant difference. ICMR has also taken steps towards increasing access to genomic testing in many parts of the country. However, we still have a long way to go before genomic testing becomes a part of routine care.

This will require many societal initiatives, greater resources, wider availability, and efforts to make testing as cost-effective as possible. The more we decrease the cost, the more accessible it becomes. Startups like 4baseCare, which is part of the LuNGS Alliance, have already brought down costs to a great extent through the use of indigenous components. It is a positive step towards making precision medicine much more accessible for most of the patients.

Ultimately, it will require a lot of effort from many people at multiple levels. It will need greater awareness among clinicians, among patients, and wider support from both state and central governments.

It will also require support from more people in society. There are many organisations and individuals who currently donate funds for treatment, but we also need them to support testing, because if you do not do the testing, you cannot provide the right treatment.

The path towards making precision medicine easily accessible to every lung cancer patient in India is a long one, but the directions towards it are clear. From building awareness through education to creating the right infrastructure and policies, we have the potential to become a model for delivering advanced care at scale. Every action taken, whether it's by a startup, an oncologist, a policymaker, towards making precision oncology accessible is a step towards a better quality of life for the patient. We are all aware that cancer care needs a collaborative approach that requires diagnostics, hospitals, pharma companies and government bodies to come together for a shared vision. We need more initiatives like the LuNGS Alliance that can bring multi disciplinary experts under one roof. These partnerships are much needed.

Additionally, we must also ensure that these advanced technologies are not just available for the urban audience. It should reach patients across cities, geographies and socioeconomic backgrounds. The true definition of success of precision medicine can be measured when they effectively translate into better outcomes for patients across urban and rural areas. By working together, we can make personalized cancer care the standard of care rather than the exception.

Dr Kumar Prabhash, Professor, Medical Oncology and Head of the Solid Tumour Unit, Tata Memorial Hospital, and Director, Homi Bhabha Cancer Institute, Muzaffarpur