Quote by Nilaya Varma, Group CEO & Co-Founder, Primus Partners

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Proton therapy expansion to put India high on global cancer care map

Authored by Sohni Das

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Article Content:

Rising capacity, cost advantage, and new centres position India as a key destination for advanced cancer care, though access gaps and affordability remain challenges.

For cancer patients across the world, proton therapy is considered a boon, being among the most efficient treatment methods compared to traditional radiation.

Led by Apollo Proton Cancer Centre in Chennai and Tata Memorial in Mumbai, India accounts for almost 6–7 per cent of global proton treatments. With new centres planned by multiple healthcare majors in Delhi, Hyderabad, and Bengaluru, the country is on track to become the next major global destination for proton care, giving a tough fight even to the United States in terms of cost and efficiency.

According to an industry estimate, there are around 110 proton therapy centres globally, out of which only around 40 are seeing regular patient inflow, treating around 15,000–16,000 patients per annum. Though India has only two centres now, it is treating over 1,000 patients per year — with Apollo catering to around 800, and Tata Memorial around 200. Based on estimates, India may see demand from over 1,61,000 patients by 2040.

The expansion is notable given that India's first unit in South East Asia — Apollo Proton Cancer Centre (APCC) — was started only on January 25, 2019. Though proton therapy began in the 1950s, it evolved into modern clinical use for cancer management only in the 1980s and 1990s in the United States. "India is fast evolving as a global hub, with our centre treating over 2,500 patients in the last six years. Considering the higher population of India, a greater number of centres are required here, and two more are being planned by Apollo itself in Hyderabad and Delhi," said Dr Karthik Anantharaman, Vice President of International Business at Apollo Hospitals, who is also in charge of APCC.

Anantharaman indicated that close to 25 per cent of APCC patients so far are from abroad. "We are treating over 150 patients a year now. Even patients from the US and Europe are opting for us due to cost advantage and efficiency," he added. The majority of these patients are coming from Mauritius, Iraq, Oman, Bahrain, Ethiopia, Kenya, Tanzania, Nigeria, Ghana, South Africa, Sri Lanka, and Bangladesh.

Public sector entry expands access

India's public-sector entry into proton beam therapy through Tata Memorial Centre (TMC) marks a structural shift in access to advanced oncology care. The facility at the Advanced Centre for Treatment,

Research and Education in Cancer (ACTREC), Kharghar — commissioned with support from the Government of India — comes years after Apollo established the country's first private proton unit.

What differentiates TMC is its positioning: a high-end technology platform embedded within a subsidised, high-volume public cancer system. Proton therapy is particularly indicated in paediatric cancers, skull base tumours, and cases where sparing surrounding tissue is critical. TMC estimates — echoed in government and hospital communications — suggest roughly2,000 children in India could benefit annually, though actual treated volumes remain limited.

Global capacity vs India gap

Globally, proton therapy infrastructure remains concentrated. The United States alone has more than 45 centres and over 100 treatment rooms, while Europe has about 30 centres across countries such as Germany, the UK, and France. In Asia, capacity has expanded to nearly 40 centres, with China, Japan, and South Korea leading growth.

Doctors say the demand–supply imbalance in India remains stark. "Currently, there are only two proton therapy centres in India... Considering that there are few centres that provide this technology, the existing demand–supply equation is evidently asymmetrical. There is a high demand and a low supply of the services," said Dr Ashish Joshi, director and co-founder at M|O|C Cancer Care and Research Centre.

He added that the gap is particularly acute in paediatric and complex cancers, where proton therapy can offer meaningful clinical advantages. Joshi noted that such disparities are typical of emerging technologies but may ease over time. "As more centres are set up… there is a likelihood that pricing will become more standardised and cheaper," he said.

Dr Ullas Batra, co-director of medical oncology and chief of thoracic oncology at Rajiv Gandhi Cancer Institute and Research Center, said demand far exceeds supply. "New centres in Hyderabad and Gurugram are planned, but evidence still favours paediatric and skull-base tumours; broader use remains unproven," he added.

"In all conventional radiation therapies, the radiation affects neighbouring structures too. Because of this, developing a second cancer with conventional IMRT (Intensity-Modulated Radiation Therapy), electron beam therapy, or Xray-based radiation can be as high as 20 to 30 per cent later in life. Whereas, the chance of developing a second cancer in proton therapy is as low as 4 per cent," Anantharaman said.

Cost, access and medical tourism

Nilaya Varma, co-founder and CEO of Primus Partners, flagged the structural imbalance between affordability and access, pointing to a dual-track system emerging in proton therapy. "There is a stark difference in pricing of proton therapy in public sector hospitals and private hospitals," he said. Institutions such as Tata Memorial Centre offer free or highly subsidised treatment, often with long waiting times, while private providers such as Apollo charge ₹25–50 lakh per treatment — lower than global benchmarks but still high for most Indian patients.

He emphasised the need for "blended financing models, including targeted CSR funding, more comprehensive insurance packages for the underserved, and systematic allocation of healthcare budget" to make expansion sustainable.Varma also highlighted medical tourism as a growth lever. "Apollo Hospitals has reported treating more than two thousand patients from 147 countries since 2019," he said, adding that India's cost advantage — often 50–60 per cent lower than Western markets — combined with initiatives such as Heal in India and e-medical visas, could strengthen its position globally.