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Nanavati Max Super Speciality Hospital unveils bioengineering lab with 3D printing technology in Mumbai

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Advanced technologies are being adopted in multiple domains for revolutionising healthcare in unprecedentedways

Nanavati Max Super Speciality Hospital has launched a medical 3D printing laboratory to facilitate high precision surgeries. This pioneering facility is closely integrated with oncology to provide state-of-the-art precision surgeries, that need to be performed carefully and accurately in oncologic, reconstructive orthopaedic and specialised dentistry surgeries.

The 3D printing laboratory features two 3D printers capable of producing bone models for a better understanding of intricate anatomy or pathology. Additionally, it generates surgical cutting guides to aid in the precise planning and execution of bone cancer surgeries.

The project has been led by Dr Manish Agarwal, Director, Surgical Oncology (Orthopaedic), Nanavati Max Institute of Cancer Care.

“Utilising custom-made jigs, detailed bone models, and advanced navigational tools, our surgical planning is elevated to a level that significantly improves patient outcomes. These innovations not only aid in precise surgical interventions but also play a critical role in enhancing the overall quality of life for our patients”, said Dr Agarwal.

The virtual design of 3D bone model is made using CT scans. These models are then utilised by the 3D printers to produce the models and surgical cutting guides with unparalleled accuracy. While the bone models are used in surgical planning, the cutting guides fit perfectly on the patient's bone, guiding surgeons to make precise excisions. The technology significantly enhances accurate delineation of tumour-affected areas to preserve healthy bone tissue and achieve optimal functional outcomes without compromising on treatment outcomes.