KFSH Transforms Medical Imaging into Patient-Specific Solutions Through Advanced 3D Printing



NY, UNITED STATES, September 9, 2026 /EINPresswire.com/ -- King Faisal Specialist Hospital and Research Centre (KFSH) is using on-site 3D printing to help surgical teams prepare for complex operations before entering the operating room. The service converts each patient's medical images into anatomical models and cutting guides that clinicians can examine, rehearse with and use to refine the surgical plan.

The service uses additive manufacturing technologies to construct highly detailed physical objects layer by layer. By translating radiological data into tangible models, KFSH enables clinical teams to examine complex anatomy before treatment, evaluate different procedural approaches and develop solutions tailored to each patient.

For surgical teams, virtual segmentation and 3D-printed anatomical models provide an additional layer of preparation in cases where access is difficult and small differences in angle, depth or positioning can affect function and symmetry. Biocompatible cutting guides can then transfer the digital plan into the operating room, helping surgeons reproduce planned dimensions and trajectories with greater consistency.

This patient-specific approach strengthens precision across the surgical pathway. It supports multidisciplinary planning, helps clinicians anticipate anatomical challenges and can reduce uncertainty before entering the operating room. Producing models and devices on site also allows clinical and engineering teams to refine designs together and respond more directly to individual cases.

KFSH is extending these capabilities into orthotics and prosthetics, where 3D technologies support the production of customized braces, prosthetic sockets and other external medical devices. Designed around the patient's anatomy and rehabilitation needs, these solutions can

improve fit, mobility, independence and quality of life.

The same preparation model supports KFSH's expansion of robotic surgery, including procedures that have achieved global firsts in heart and liver transplantation. Patient-specific models, digital simulation and structured rehearsal help clinical teams practice difficult surgical steps, test access routes and prepare for anatomical variation before operating. This capability will feature in KFSH's contribution to the C3 US NYC Davos of Healthcare™ Summit 2026 on September 14 in New York City.

King Faisal Specialist Hospital and Research Centre has been ranked first in the Middle East and Africa and 12th globally among the world's top 250 academic medical centers for 2026. It was also recognized as the most valuable healthcare brand in the Kingdom and the Middle East for 2026, according to Brand Finance, and listed by Newsweek among the World's Best Hospitals, World's Best Smart Hospitals, and World's Best Specialized Hospitals for 2026.

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