

April 27, 2017



British Hospital Transforms Life-Changing Maxillofacial Surgeries With Stratasys 3D Printing

- *Stratasys 3D Printer at Queen Elizabeth Hospital leads to cost savings in operating room (OR) time of up to £20,000 per surgery*
- *In-house 3D printing capabilities enable time saving of 93 percent in surgical planning time, and time savings of three to four hours in OR time*
- *Stratasys PolyJet 3D printing is used to construct advanced maxillofacial cutting guides and anatomical models for patients with severe conditions, including facial and cranial tumours*

MINNEAPOLIS & REHOVOT, Israel--(BUSINESS WIRE)-- [Stratasys Ltd.](#) (Nasdaq:SSYS), the 3D printing and additive manufacturing solutions company, today announced that its PolyJet 3D printing technology is helping to improve life-changing maxillofacial surgeries at the [Queen Elizabeth Hospital](#) in Birmingham, UK. [Stratasys' Objet Eden350V 3D Printer](#) is deployed to produce customized models for pre-surgical preparations, enabling a reduction of up to 93 percent in surgical planning time associated with standard anatomical models. Furthermore, the hospital reports that three to four hours are saved in surgical time per surgery, and costs are reduced by up to £20,000 per operation.

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Having previously outsourced its 3D printing requirements, implementing an in-house 3D printer, with help of [Tri-Tech 3D](#), has revolutionised pre-surgical procedures across a number of departments. This includes the maxillofacial (face and jaw); burns and plastics; ear, nose and throat; and neurosurgery units.

“The ability to produce lifelike medical models in-house on our Stratasys 3D Printer saves around three to four hours in OR time per surgery, which at a cost of £5,000 an hour of operating room time, is quite a substantial cost saving,” explains Stefan Edmondson, Consultant Maxillofacial Prosthetist at the hospital.

Changing entire procedures with 3D printing

Most of the patients currently benefiting from the hospital's 3D printing capability are trauma and cancer patients, typically those with facial or cranial tumours. Using Stratasys 3D printing, the maxillofacial prosthetic team converts patients' CT scans into highly accurate 3D printed replica models, bone replacement parts or metal prosthetic plates that are customized to the exact specification of each patient.

“If we need to remove bone from a patient’s face, we can produce an exact 3D printed model



to develop the cutting guides,” continues Edmondson. “This process results in more efficient clinical outcomes and saves the hospital, patient and medical practitioner valuable time and associated costs.”

As well as facilitating the production of surgical cutting guides to speed up extremely advanced procedures, Stratasys PolyJet 3D printing allows surgeons to practice surgeries on true-to-life 3D printed

The hospital's Stratasys Objet Eden350V 3D Printer allows Consultant Maxillofacial Prosthetist Stefan Edmondson and his team to save around three to four hours in OR time per surgery (Photo: Stratasys)

anatomical models. This provides invaluable insight into procedural outcomes and helps minimize risks.

The unique properties of Stratasys’ materials are also integral to the process, with the VeroWhite material providing a smooth, high resolution finish ideal for accurate anatomical models. This provides an invaluable reference material throughout operations.

3D printing transforms surgical procedures for cancer patients

“When dealing with severe cases whereby surgical plates hold facial bones in place, we need absolute assurance that they fit the patients’ measurements exactly,” continues Edmondson.

“3D printing a replica of the patient’s anatomy allows us to pre-bend these plates in our laboratory. Having these capabilities at the hospital streamlines the entire operation and ensures we are 100 percent prepared when heading into surgery.”

“The advances Queen Elizabeth Hospital is making in the use of 3D printing in surgical planning are remarkable,” says Scott Rader, General Manager, Healthcare Solutions, Stratasys. “It is a clear demonstration of the ability for 3D printing to enable physicians to better plan, practice and determine the optimal surgical approach. In the current operating climate, physicians need solutions that can save time and money, while also improving quality of care. Queen Elizabeth’s implementation of 3D printing achieves these goals.”

For more than 25 years, [Stratasys Ltd. \(NASDAQ:SSYS\)](#) has been a defining force and dominant player in 3D printing and additive manufacturing – shaping the way things are made. Headquartered in Minneapolis, Minnesota and Rehovot, Israel, the company

empowers customers across a broad range of vertical markets by enabling new paradigms for design and manufacturing. The company's solutions provide customers with unmatched design freedom and manufacturing flexibility – reducing time-to-market and lowering development costs, while improving designs and communications. Stratasys subsidiaries include MakerBot and Solidscape, and the Stratasys ecosystem includes 3D printers for prototyping and production; a wide range of 3D printing materials; parts on-demand via Stratasys Direct Manufacturing; strategic consulting and professional services; and the Thingiverse and GrabCAD communities with over 2 million 3D printable files for free designs. With more than 2,700 employees and 1200 granted or pending additive manufacturing patents, Stratasys has received more than 30 technology and leadership awards. Visit us online at: www.stratasys.com or <http://blog.stratasys.com/>, and follow us on [LinkedIn](#).

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Source: Stratasys Ltd.