



CBCT-Based 3D Printed Model for Surgical Dental Implant Simulation

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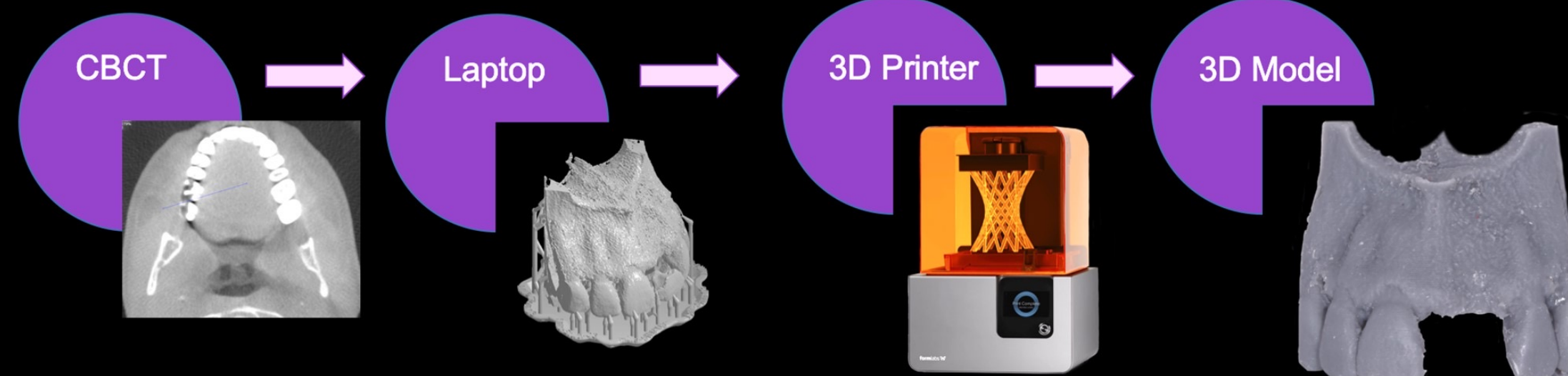
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STEPS IN PRODUCTION OF A 3D MODEL



As implant dentistry is becoming more widely practiced, effective continuing education has become very important. Mainly, this education is based on pre-clinical hands-on practice and clinical training for some of them. To design and perform a hands-on, several materials and methods have been suggested and used (typodonts, models from the mouth, animal jaws and human cadavers). The use of 3D hands on models has become an essential part of implant dentistry, providing a means for educating both dental students and clinicians for the placement of implants prior to surgical procedures. The application of this technology has provided a new perspective of the patient's anatomy and a new way to

evaluate and simulate the treatment prior to the actual patient's appointment. The combination of 3D printing in conjunction with CBCT provides a visual and physical representation of a patient's maxillofacial morphology. It subsequently creates more accurate pre-operative surgical simulation environment to the patient's anatomic site. In addition, Implant placement could be facilitated by determining the exact angulation and location of the implant on the 3D model prior to surgical placement. This case report presents the benefits of using 3D-printed models in conjunction with CBCT in order to simulate implant surgical procedures.

