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Study of a Customized Implant in Cranio-Maxillofacial Surgery

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Latest developments in engineering are increasingly applicable in medicine. The use of Additive Manufacturing (AM) methods in the customized surgery can improve the patients' life quality. The customized implants are created in the pre-surgical stage, on the basis of the medical data acquired by computer-assisted-tomography or nuclear magnetic resonance using three-dimensional virtual models and CAD/CAM techniques. The paper presents the required steps for manufacturing a customized cranial implant. During this study, a cranial defect was reconstructed using a personalized cranioplasty plate produced by AM methods. The surgery was successful and the patient feels well, has an improved physical aspect after implantation.