

stryker |  **3D SYSTEMS**

VSP[®]

Virtual Surgical Planning



Plan with
confidence.

Virtual Surgical Planning

VSP is a 510(k) cleared solution that is designed to provide surgeons with clear 3D visualization of a patient's anatomy to develop a surgical plan prior to entering the operating room.

With years of experience in Virtual Surgical Planning, 3D Systems' unmatched expertise helps provide surgeons with improved accuracy and surgical outcomes that result in reduced time in the operating room.^{1,2,3,4,5}

Following the online planning session between 3D Systems' biomedical engineers and the surgeon; patient-specific surgical guides, models and instruments are designed and 3D printed for use within the sterile field.

VSP process

1



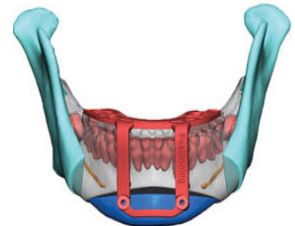
Medical imaging data is prepared for the webmeeting.

2



Surgical planning webmeeting takes place between the surgeon and 3D Systems engineers.

3



Patient-specific disposable instruments (splints, guides) are designed.

4



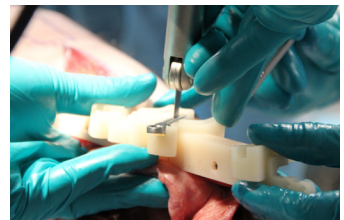
Instrument design is reviewed on a detailed case report and approved by surgeon.

5



3D printed models, guides and templates are manufactured and shipped.

6



Models, guides and templates are used in surgery.

VSP Reconstruction

Solutions for mandibular or maxillary reconstruction with free flaps and full jaw reconstruction.

Features

- Reconstructed model of the anatomy showing the proposed post-operative outcome
- Patient specific resection guide(s) for the maxilla and/or mandible, to help allow accurate transfer of the digital plan
- Graft osteotomy guide for the donor site that contains precise osteotomies to create closing wedges, if needed

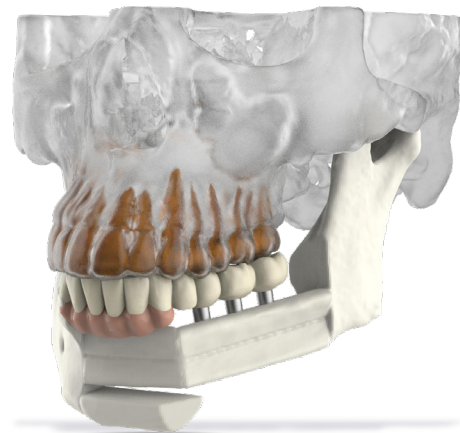


Advancing personaliz

Jaw in a Day[®]

The Jaw in a Day product line allows for immediate placement of a provisional dental prosthesis during a single-stage free tissue transfer jaw reconstruction surgery. The surgical planning along with guide and prosthesis designs are completed using state-of-the-art CAD/CAM technology, allowing the patient to emerge after a single surgery with a full jaw reconstruction, including dental rehabilitation.

This process shortens procedure time, streamlines treatment, reduces operating costs and allows patients the convenience of a single surgery.^{3,4,5}



VSP Orthognathics

Orthognathic virtual surgical planning, 3D printed intermediate and final splints, and patient-specific guides.

Features

- Accurate osteotomy simulation tailored to clinical requirements
- Real time 3D bony movement and cephalometric analysis
- A range of splints and guides are available to assist in accurately cutting and positioning anatomy
- Empowers Facial iD 3D printed plates for a patient-specific approach to fixation



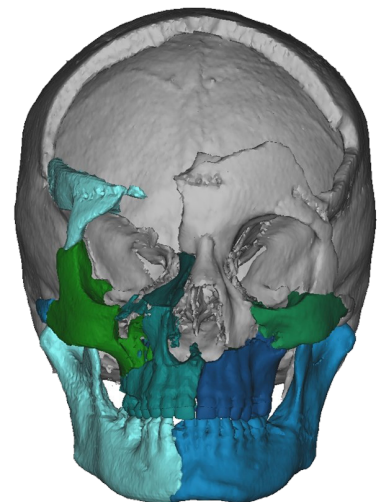
ed surgery, **together.**

VSP Trauma

Facilitating trauma reduction surgery with repositioning guides and/or augmented DICOM data for navigation assistance.

Features

- Solutions can be scaled for these time sensitive cases
- Digitally reduced, perfected or mirrored anatomical models for a more simplified approach to reduction
- Patient specific osteotomy and positioning guides
- Occlusal-based positioning splints

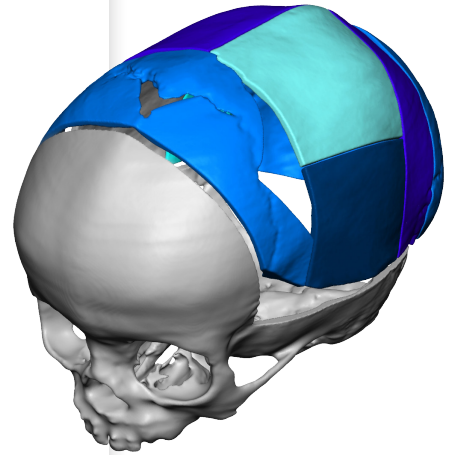


VSP Cranial

Cranial reconstruction solutions with marking and positioning guides.

Features

- Accurate pre-surgical visualization of cuts and movements
- Real-time comparison to a selection of age-matched normative anatomical contours
- Personalized marking and positioning guides for realization of digital plan

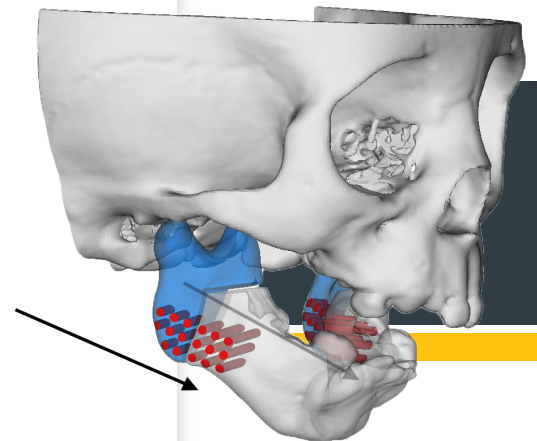


VSP Distraction

Distraction osteogenesis planning reveals underlying tooth roots and nerves to optimize device position.

Features

- Osteotomy planning
- Identifies a distraction vector plan
- Templates to guide intra-operative device placement
- Models facilitate pre-operative hardware setup

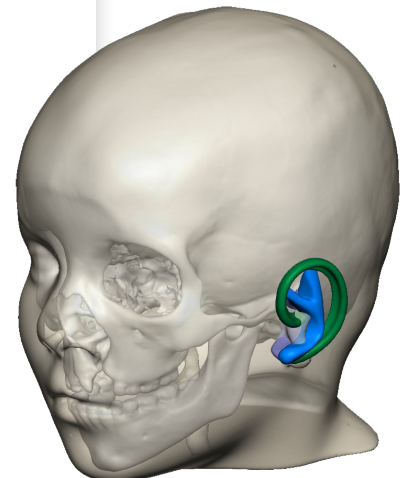


VSP Microtia

Surgical guides and templates for autogenous ear reconstruction cases.

Features

- Optimal graft site determined during VSP session
- Use templates to accurately harvest bone
- Helps facilitate reconstruction, using suture and shaping guides



Craniomaxillofacial

A surgeon must always rely on his or her own professional clinical judgment when deciding whether to use a particular product when treating a particular patient. Stryker does not dispense medical advice and recommends that surgeons be trained in the use of any particular product before using it in surgery.

The information presented is intended to demonstrate the breadth of Stryker product offerings. A surgeon must always refer to the package insert, product label and/or instructions for use before using any Stryker product. Products may not be available in all markets because product availability is subject to the regulatory and/or medical practices in individual markets. Please contact your Stryker representative if you have questions about the availability of Stryker products in your area.

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Please visit

www.3dsystems.com/medicaldata for digital transfer of DICOM images.

References:

1. Hirsch DL, Garfein ES, Christensen AM, Weimer KA, Saadeh PB, Levine JP: Use of computer-aided design and computer-aided manufacturing to product orthognathically ideal surgical outcomes: a paradigm shift in head and neck reconstruction. J Oral Maxillofac Surg 67:2115-2122, 2009
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