

# Future of Point of Care Manufacturing in Craniomaxillofacial Disease

## Integrated Prosthetics and Reconstruction Point of Care

### Virtual Surgical Planning and Additive Manufacturing

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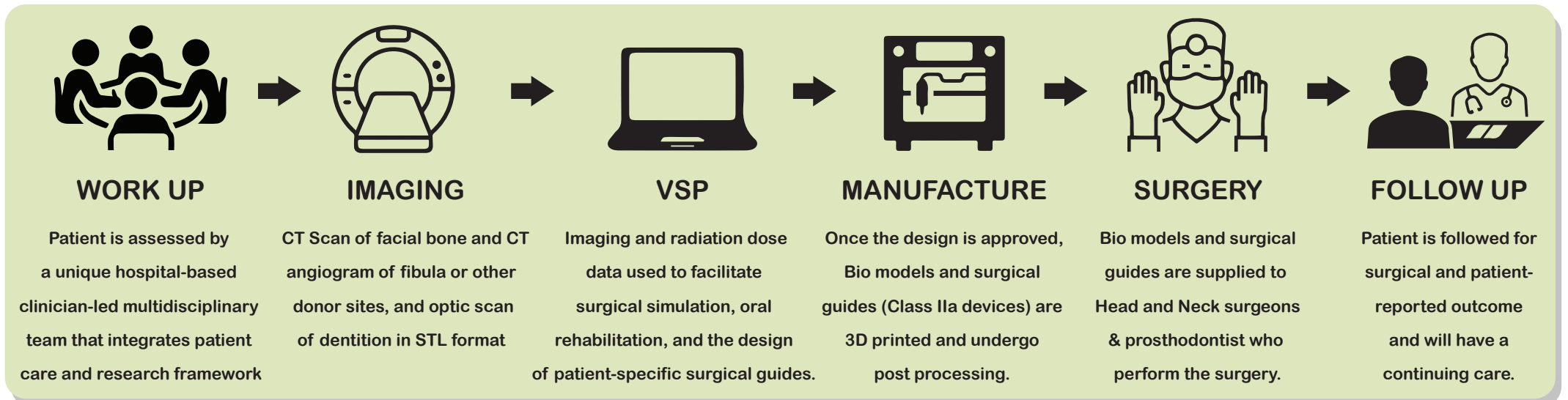


Figure 1: Point of care virtual surgical planning (VSP) and additive manufacturing is a non-traditional form of manufacturing referring to the just-in-time creation of patient-specific anatomical models, surgical instruments, and prosthetics at the place of patient care using medical imaging data and digital technology offering equitable and precision personalised treatment.

Chris O'Brien Integrated Prosthetics and Reconstruction is the first of its kind MDT and Point of Care (POC) service offering integrated advanced prosthetics and reconstruction solutions to patients with craniomaxillofacial (CMF) cancers and deformities. We review average of 6 cases fortnightly to provide a rapid turnaround time to plan and progress prosthetics and reconstruction.

The Prosthetics and Reconstruction of jaw is the one of major service provided through the Integrated Prosthetics and Reconstruction. The capacity of jaw reconstruction surgery has dramatically increased over the last 6 years at Chris O'Brien Lifehouse, especially in last 12 months since the establishment of the Integrated Prosthetics and Reconstruction.

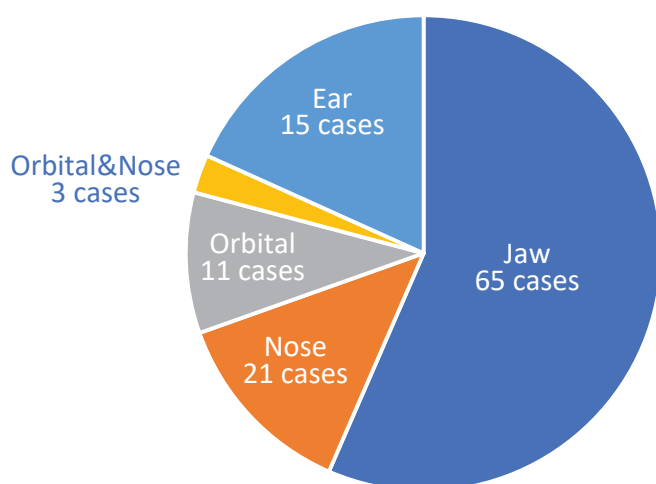


Figure 2 shows different cases presented at the Integrated Prosthetics and Reconstruction.

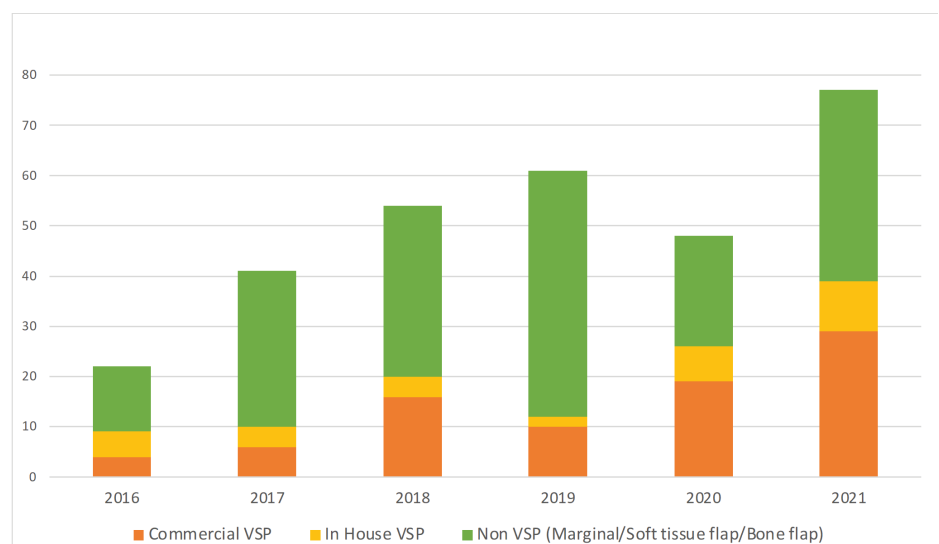
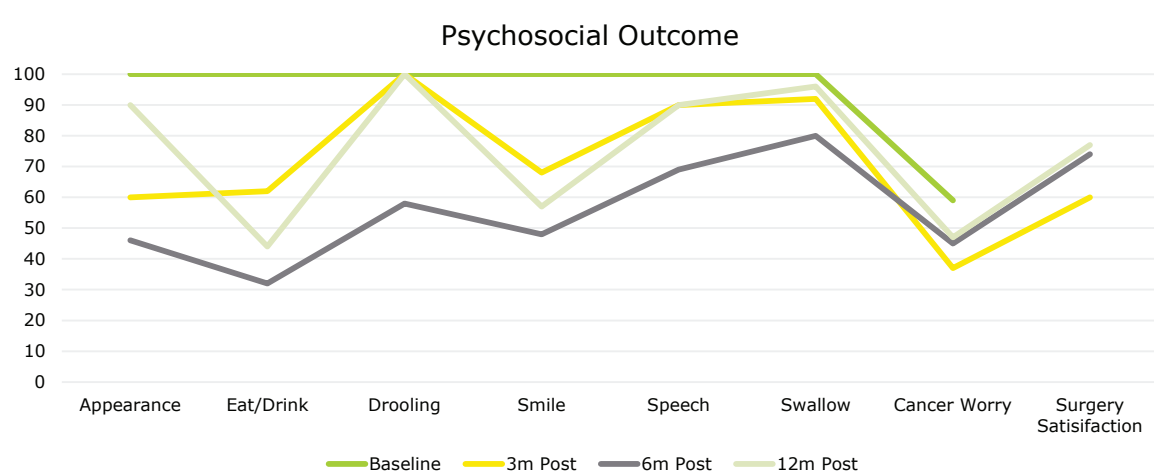
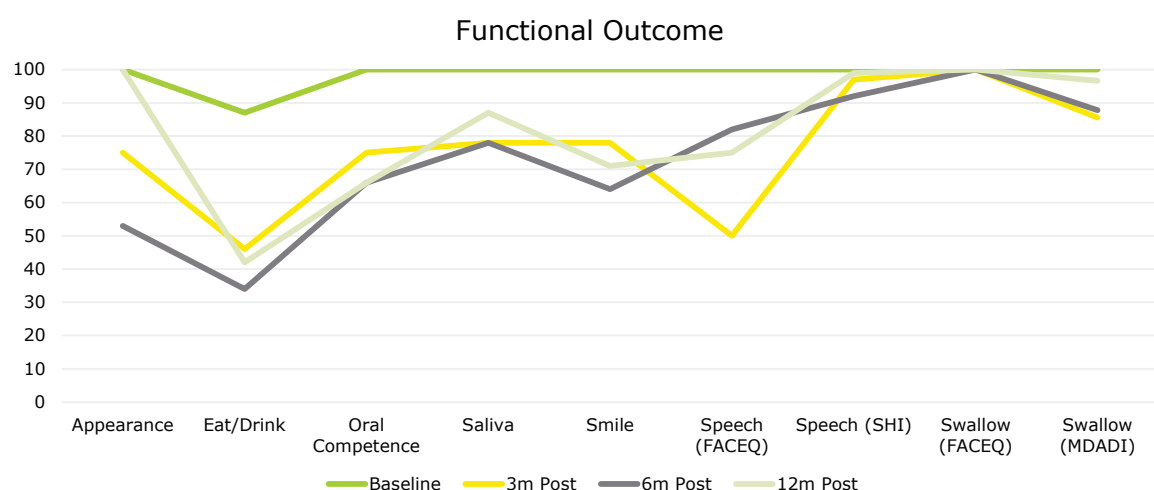


Figure 3 indicates that 50% of all jaw reconstruction cases are virtual surgical planned commercially or at point of care in 2021.

IPR has established a prospective jaw reconstruction database where clinical and surgical data is collected along with important quality of life (QoL) and functional outcome data.

The Figure 4 shows the change in the quality of life and functional outcome from the baseline over 12 months for a 64 years old female patient who was diagnosed with Squamous Cell Carcinoma (SCC) of upper alveolus and who has undergone a reconstruction surgery in Nov 2020.

This data provides a valuable feedback to improve IPR MDT service and prosthetic and reconstructive techniques.

Figure 4: Prospective Quality of life and Functional outcome date over 12 months following jaw reconstruction surgery