5.08 Bespoke 3D printed attachment to deliver CPAP to a patient with a laryngectomy

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Background: A patient with a laryngeal stoma required continuous positive airway pressure (CPAP), but the altered anatomy did not provide a means to anchor the CPAP tubing to this patient's airway. A review of the academic literature and professional forums revealed that there was no off-the-shelf accessory available.

Methods: A multidisciplinary team, in conjunction with the patient; designed, prototyped, and tested a bespoke 3d printed connector assembly to allow the patient to receive CPAP therapy. The final build assembly comprised of a combination of off the shelf medical devices and 3D printed components using materials compliant with the medical device industry.

The patient was central to the design process, including trial of the final prototype, and provided continuous feedback on performance and usability. Objective and subjective outcome measures were assessed pre-intervention, at 3 months and 6 months.

Results: A clinically importance difference was met in subjective and objective outcome measures at 3 and 6 months review. Subjectively the patient reported significant improvements in quality of life.

Conclusion: This project is a case study example of multidisciplinary hospital team using 3D printed technology to collaborate with a patient to develop a customised product to meet an otherwise unmet need.

Conflict of Interest: The authors declare that they have no conflict of interest.

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