

## 00308 Tracheoesophageal Voice Prosthesis Device Life in Singapore and Factors Associated With Device Failure

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**Aims:** Tracheoesophageal voice restoration rehabilitates the voice after total laryngectomy. A voice prosthesis is placed through a surgically-created tracheoesophageal fistula. Prosthesis failure results in leakage of saliva and food through the prosthesis, leading to aspiration. Routine replacement is therefore needed. Voice prosthesis device median lifespan ranges widely in the literature, from 6 weeks to 10 months. We aim to evaluate voice prosthesis device life in Singapore, and factors associated with device life and failure.

**Methodology:** Voice prosthesis device life of 37 laryngectomized patients at a tertiary hospital in Singapore from January 2013 to June 2018 were retrospectively reviewed. We included records of voice prostheses inserted and removed at the institution, and excluded records with incomplete duration data, or where replacement was done by patients or at other institutions. We examined voice prosthesis type and treatment-related factors on prosthesis device life with Kaplan-Meier analyses and log-rank tests.

**Result:** Of the total 285 voice prosthesis replacements analyzed, median days to replacement was 96. Fifty-nine percent were replaced due to device failure at a median of 89 days. Among replacements made for device failure, non-indwelling prostheses had shorter lifespans (median: 61 days) than indwelling voice prostheses (median: 106 days,  $\chi^2(1)=10.5$ ,  $p=0.001$ ). Prostheses placed in patients who had undergone flap reconstruction had shorter lifespans (median: 69 days) than those without (median: 92 days,  $\chi^2(1)=5.6$ ,  $p=0.018$ ). Extent of resection, radiation therapy history, and timing of voice restoration surgery were not significantly associated with prosthesis lifespan.

**Conclusion:** Voice prosthesis device life in Singapore is comparable to that reported internationally. Flap reconstruction and non-indwelling voice prostheses are associated with earlier prosthesis failure. These results can improve pre-operative counselling, patient selection for surgical voice restoration, and healthcare cost analysis of voice rehabilitation. Future consideration of factors such as dietary and hygiene habits on prosthesis lifespan is necessary.