

## Frequency of Tube Feeding in Aboriginal and Non-aboriginal Head and Neck Cancer Patients and the Impact on Relapse and Survival Outcomes

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**Abstract :** Introduction: Head and neck cancer and treatments are known for their profound effect on nutrition and tube feeding is a common requirement to maintain nutrition. Aim: We aimed to evaluate the frequency of tube feeding in Aboriginal and non-Aboriginal patients, and to examine the relapse and survival outcomes in patients who require enteral tube feeding. Methods: We performed a retrospective cohort analysis of 320 head and neck cancer patients from a single centre in Western Australia, identifying 80 Aboriginal patients and 240 non-Aboriginal patients matched on a 1:3 ratio by site, histology, rurality, and age. Data collected included patient demographics, tumour features, treatment details, and cancer and survival outcomes. Results: Aboriginal and non-Aboriginal patients required feeding tubes at similar rates (42.5% vs 46.2% respectively), however Aboriginal patients were far more likely to fail to return to oral nutrition, with 26.3% requiring long-term tube feeding versus only 15% of non-Aboriginal patients. In the overall study population, 27.5% required short-term tube feeding, 17.8% required long-term enteral tube nutrition, and 45.3% of patients did not have a feeding tube at any point. Relapse was more common in patients who required tube feeding, with relapses in 42.1% of the patients requiring long-term tube feeding, 31.8% in those requiring a short-term tube, versus 18.9% in the 'no tube' group. Survival outcomes for patients who required a long-term tube were also significantly poorer when compared to patients who only required a short-term tube, or not at all. Long-term tube-requiring patients were half as likely to survive (29.8%) compared to patients requiring a short-term tube (62.5%) or no tube at all (63.5%). Patients requiring a long-term tube were twice as likely to die with active disease (59.6%) as patients with no tube (28%), or a short term tube (33%). This may suggest an increased relapse risk in patients who require long-term feeding, due to consequences of malnutrition on cancer and treatment outcomes, although may simply reflect that patients with recurrent disease were more likely to have longer-term swallowing dysfunction due to recurrent disease and salvage treatments. Interestingly long-term tube patients were also more likely to die with no active disease (10.5%) (compared with short-term tube requiring patients (4.6%), or patients with no tube (8%)), which is likely reflective of the increased mortality associated with long-term aspiration and malnutrition issues. Conclusions: Requirement for tube feeding was associated with a higher rate of cancer relapse, and in particular, long-term tube feeding was associated with a higher likelihood of dying from head and neck cancer, but also a higher risk of dying from other causes without cancer relapse. This data reflects the complex effect of head and neck cancer and its treatments on swallowing and nutrition, and ultimately, the effects of malnutrition, swallowing dysfunction, and aspiration on overall cancer and survival outcomes. Tube feeding was seen at similar rates in Aboriginal and non-Aboriginal patient, however failure to return to oral intake with a requirement for a long-term feeding tube was seen far more commonly in the Aboriginal population.

**Keywords :** head and neck cancer, enteral tube feeding, malnutrition, survival, relapse, aboriginal patients

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