Radiotherapy is a major component of the management strategy for local or regionally advanced head and neck cancer. Irradiation of surrounding normal tissues commonly occurs, leading to radiation-induced xerostomia.

**Objectives**

- To develop a comprehensive prediction model for the development of radiation-induced xerostomia, forecast the risk of xerostomia among different patients.
- To enhance treatment decisions and provide a foundation for a personalized xerostomia learning health system.

**Materials/Methods**

- Study design: Case-control study
- Primary outcome: xerostomia grade (CTCAE v4.0) at 90 - 150 days after RT
- Risk factors: demographic factors, clinical assessments, medical history, volumetric factors, dosimetric factors
- Statistical analysis: Logistic regression; Classification and Regression Tree (CART)

**Conclusions**

- The low dose bath (at 9.26 Gy) - a potentially important treatment-modifying parameter to reduce the risk of severe xerostomia.
- A better accuracy for parotid D95 than the conventional parotid mean dose.
- A risk prediction model to be incorporated into learning health system.

**Purpose/Objectives**

**Background**

- Radiotherapy is a major component of the management strategy for local or regionally advanced head and neck cancer.
- Irradiation of surrounding normal tissues commonly occurs, leading to radiation-induced xerostomia.

**Objectives**

- To develop a comprehensive prediction model for the development of radiation-induced xerostomia, forecast the risk of xerostomia among different patients.
- To enhance treatment decisions and provide a foundation for a personalized xerostomia learning health system.

**Materials/Methods**

- Study design: Case-control study
- Primary outcome: xerostomia grade (CTCAE v4.0) at 90 - 150 days after RT
- Risk factors: demographic factors, clinical assessments, medical history, volumetric factors, dosimetric factors
- Statistical analysis: Logistic regression; Classification and Regression Tree (CART)

**Conclusions**

- The low dose bath (at 9.26 Gy) - a potentially important treatment-modifying parameter to reduce the risk of severe xerostomia.
- A better accuracy for parotid D95 than the conventional parotid mean dose.
- A risk prediction model to be incorporated into learning health system.