

Supplementary Table 1: Criteria used by the surgeon to classify measurement sites

Category	Criteria
Normal / Benign	Clinical appearance of normal mucosa, including intact mucosa and previously radiated or operated mucosa, with no ulcerations, no leukoplakia, no hyperkeratosis, no erythroplakia, and no mass effect.
Abnormal, low-risk	Abnormal clinical appearance, but no clinical features suggestive of dysplasia or cancer, including erythema and inflammation, hyperkeratosis, lichen planus, thin leukoplakia, trauma, mucositis, gingivitis, etc.
Abnormal, high-risk	Abnormal clinical appearance worrisome for dysplasia or microinvasive carcinoma, but not suggestive of frankly invasive carcinoma. Includes sites with thick or heterogeneous leukoplakia, erythroplakia, thin ulcerations, suspicious leukoplakia but no obvious invasive disease.
Cancer	Obvious invasive carcinoma.

Supplementary Table 2: Scoring criteria for IHC stained sites

IHC marker	Staining pattern	IHC expression (score)
Ki-67	Basal layer only	Low (1)
	Confined to lower 1/3 epithelium	Moderate (2)
	Mid- or full-thickness epithelium	High (3)
p63	Confined to lower 1/3 epithelium	Low (1)
	Above lower 1/3 epithelium	High (3)
PHH3	Confined to basal layer only	Low (1)
	Staining in lower 1/3 or above	High (3)

Supplementary Table 3: Distribution of measurement sites by anatomical location

Anatomical location	Number of sites
Tongue	61
Floor of mouth	15
Buccal mucosa	7
Gingiva / Alveolar ridge	7
Palate	4
Lip	3
Retromolar trigone	3
Total	100

Supplementary Table 4: Distribution of measurement sites by clinical impression and pathology diagnosis

		Pathology diagnosis					Total
		Normal	Mild dysplasia	Moderate dysplasia	Severe dysplasia	Cancer	
Clinical impression	Normal	33	5	2	0	0	40
	Abnormal, low-risk	8	11	4	2	1	26
	Abnormal, high-risk	4	1	5	4	6	20
	Cancer	0	0	3	0	11	14
Total		45	17	14	6	18	100