# 6.2 CANCER

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### 06-2.1 USE OF SMOKELESS TOBACCO AND THE RISK OF OESOPHAGEAL SQUAMOUS-CELL CARCINOMA: A MULTICENTER CASE-CONTROL STUDY

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**Introduction** Oesophageal cancer remains an important public health problem worldwide. This multicenter matched case-control study examined chewing of betel quid, areca nut, snuff dipping and cigarette smoking as the risk factors for oesophageal squamous-cell carcinoma.

**Methods** We enrolled 91 cases of oesophageal squamous-cell carcinoma and 364 matched controls from three tertiary-care hospitals in Karachi, Pakistan. A structured questionnaire was used for data collection.

**Results** Multivariable conditional logistic regression model showed that chewing of betel quid (adjusted matched OR ($mOR_{adj}$) =9.7; 95% CI 5.0 to 18.8), areca nut ($mOR_{adj}$ =4.3; 95% CI 1.5 to 12.4), snuff dipping ($mOR_{adj}$ =3.6; 95% CI 1.3 to 9.8) and ever-smoking ($mOR_{adj}$ =2.8; 95% CI 1.3 to 5.8) had significant independent associations with oesophageal squamous-cell carcinoma status. The adjusted summary population attributable risk per cent for all the substances together was 69.0. Furthermore, despite incomplete synergy, there was manifold increase in the risk of oesophageal squamous-cell carcinoma if the respondents were ever smokers and betel quid chewers ($mOR_{adj}$ =19.4; 95% CI 6.1 to 62.1) or if they were ever smokers and used oral snuff ($mOR_{adj}$ =11.9; 95% CI 1.8 to 77.3). The adjusted population attributable risk (%) was higher for combined use of cigarette smoking with betel quid (68.8) than with snuff dipping (29.3).

**Conclusions** Public awareness to curtail the addiction to these substances may result in a substantial reduction in the incidence of oesophageal squamous-cell carcinoma and related morbidity and mortality in this and similar settings.

### 06-2.2 WHAT FACTORS ACCOUNT FOR THE ETHNIC DISPARITIES IN STAGE AT DIAGNOSIS AND CERVICAL CANCER SURVIVAL IN NEW ZEALAND?

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**Objective** To investigate which factors account for the ethnic disparities in stage at diagnosis and cervical cancer survival in New Zealand.

**Methods** The study involved 1594 cervical cancer cases registered during 1994–2005. Logistic regression was used to estimate adjusted ORs for late stage diagnosis. Cox regression was used to estimate adjusted cervical cancer mortality HRs.

**Results** Māori and Pacific women had a higher risk of late stage diagnosis compared with "Other" (predominantly European) women with adjusted ORs of 2.71 (1.98 to 3.72) and 1.39 (0.76 to 2.54) respectively. The excess risk in Māori women fell by 19% when adjusted for screening history, and travel time to the nearest general practitioner and cancer centre; the excess risk in Pacific women fell by 85% when adjusted for the same factors. The survival HRs for Māori and Pacific women were 2.10 (1.61 to 2.73) and 1.96 (1.23 to 3.13) respectively; these fell by 59% and 43% respectively when adjusted for stage at diagnosis, comorbidities, and travel time.

**Conclusions** There are major ethnic differences in cervical cancer stage at diagnosis and cervical cancer survival in New Zealand. The excess risk of late stage diagnosis in Māori women remains largely unexplained, whereas that in Pacific women is almost entirely due to differences in screening history and travel time. About one-half of the excess risk of mortality in Māori and Pacific women is explained by differences in stage at diagnosis and comorbidities; it is possible that other factors, including possible differences in treatment and follow-up, may also play a role.

### 06-2.3 ESTIMATING THE POPULATION-LEVEL IMPACT OF MODIFIABLE AND NON-MODIFIABLE RISK FACTORS ON INVASIVE POSTMENOPAUSAL BREAST CANCER AND BREAST CANCER SUBTYPES

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**Introduction** Population-attributable risk estimation of modifiable postmenopausal breast cancer risk factors might help to guide public health initiatives.

**Methods** Using data on 3074 cases and 6386 controls from a population-based case-control study of postmenopausal breast cancer conducted in Germany between 2002 and 2005, we calculated multivariable-adjusted ORs and population attributable risks (PARs) for modifiable and non-modifiable risk factors. We examined overall postmenopausal invasive breast cancer as well as tumour subtypes by estrogen receptor (ER) and progesterone receptor (PR) status.

**Results** The summary PARs (95% CIs) for non-modifiable risk factors (age at menarche, age at menopause, parity, benign breast disease, and family history of breast cancer) were 37.2% (27.1 to 47.2%) regarding overall invasive tumours, and 36.5% (23.3 to 47.6%) regarding ER+/PR+ tumours. Of the modifiable risk factors (hormone therapy (HT) use, physical inactivity, BMI, alcohol consumption), HT use and physical inactivity had the highest impact with PARs of 19.4% (15.9 to 23.2%) and 12.8% (5.5 to 20.8%), respectively, regarding overall invasive tumours. For ER+/PR+ tumours, the corresponding PARs were 25.3% (20.9 to 29.7%) and 16.6% (7.0 to 26.0%). The summary PARs (95% CIs) for HT use and physical inactivity together were 29.8% (21.8 to 36.9%) and 37.9% (30.6 to 46.2%) regarding overall invasive and ER+/PR+ tumours, respectively.

**Conclusions** The population-level impact of modifiable risk factors appears to be comparable to that of non-modifiable risk factors. Alterating the prevalence of HT use and physical inactivity could potentially reduce postmenopausal invasive breast cancer incidence in Germany by nearly 30%, with the largest potential for reduction among ER+/PR+ tumours, the most frequently diagnosed subtype.