

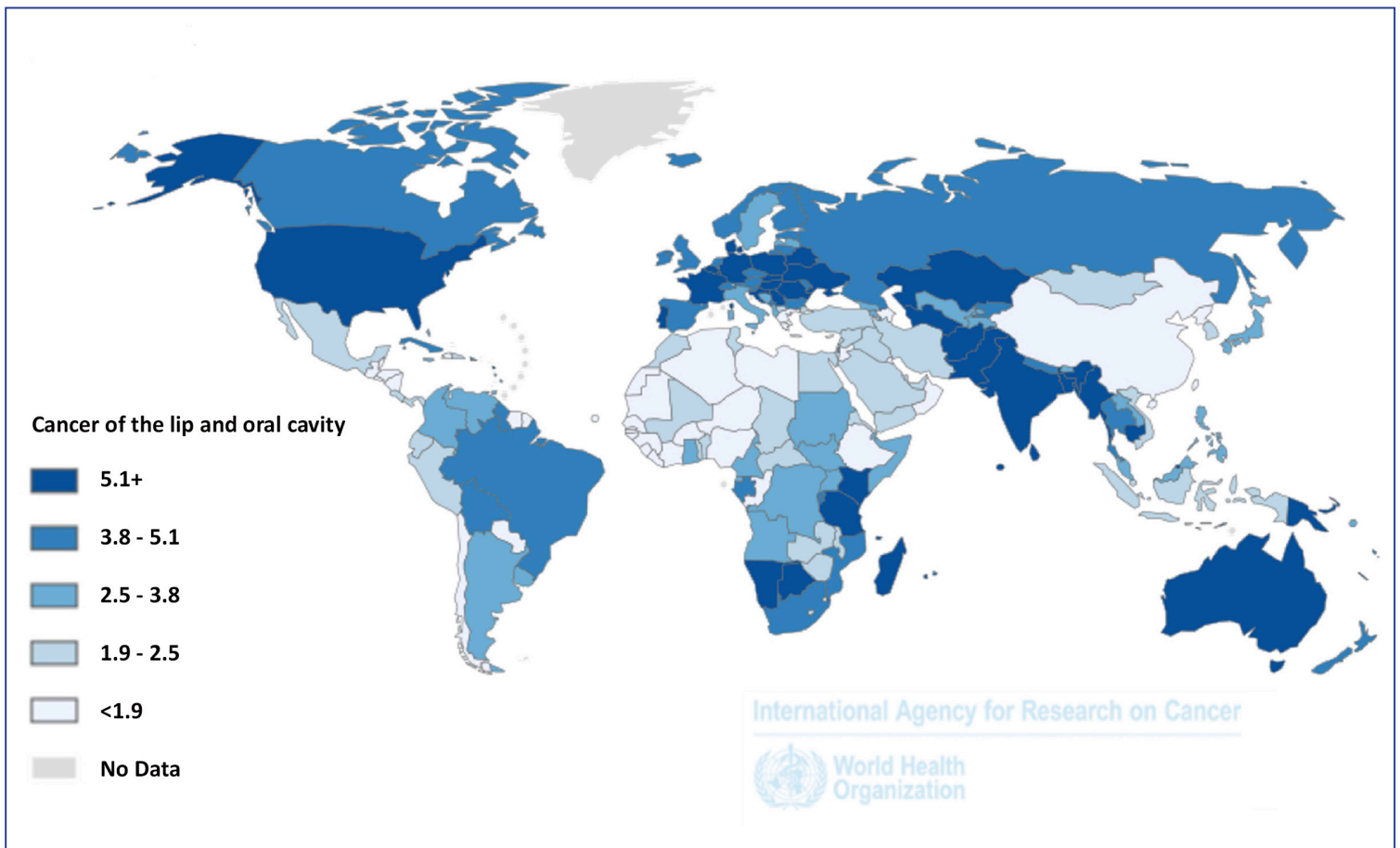


## What Is Oral Cancer Screening?

Screening for oral cancer or pre-cancer (for example, leukoplakia) before a person has any symptoms is intended to find cancer at an early stage. Screening is important because less than 50% of oral cancer patients access services in early stages of the disease. In many low- and middle-income countries, oral cancer screening is performed by dentists and doctors, although training of health professionals and availability of screening vary. Screening is recommended for individuals who chew betel quid, drink heavily, smoke cigarettes, and/or have had a previous diagnosis of oral cancer (WHO, 2016).

The WHO Global Oral Health Programme strongly suggests adding preventive cancer screening and surveillance to national policies. Many developing countries rarely conduct oral cancer screenings at the national level, however, despite much research stating that treatment of early-stage oral cancer can achieve higher survival rates and less morbidity than treatment of late-stage disease (Warnakulasuriya, 2009; IARC, 2016; Ford & Farah, 2013). Diagnosis in advanced stages, unaffordable treatment modalities, and inaccessibility of health centers or trained health professionals are the most common treatment-related factors contributing to the high burden of disease (Shrivastava et al., 2014).

Figure 1: Incidence of Oral Cancer Among Both Sexes (Age Specific Rate)



\*Data Source: GLOBOCAN 2012, International Agency for Research on Cancer. Available from: <http://globocan.iarc.fr/Default.aspx>

**Table 1: Methods for Conducting Oral Cancer Screening**

| Screening Test  | Strengths   | Limitations   |
|---|---|---|
| Visual inspection: involves inspection to detect visible lesions of the oral cavity in a good light. Can be performed by a dentist, physician, or trained health care worker  | Requires less infrastructure; can be done in the field; immediate results; neck can also be palpated for any nodes; high specificity. Simultaneous counseling can be provided to people at high risk. | Training of health care workers; maintenance of quality   |
| Mouth self-examination (MSE): Involves inspection of mouth by the patient himself/herself   | No infrastructure required  | Need to educate the population; literate population required; continuous motivation required  |
| Methylene/toluidine blue staining: Toluidine blue staining is a simple method, with the dye having an affinity to cancer cells. Commercial kits with protocol are available for large-scale screening of high-risk populations, or in clinical patients, by topical application or mouth rinsing. | Easy and reliable; helpful for patient having panoramic field cancerization   | Can result in false positives and false negatives; should be used in combination with clinical judgment but not as a substitute for either judgment or biopsy; more of a diagnostic test than a screening test            |
| Direct fluorescence visualization: Involves visualization of the oral cavity with a handheld device emitting fluorescent light  | Easy  | Requirement of specialized equipment; not many studies have been reported   |
| Oral exfoliative cytology: A suspicious area is gently scraped to collect a sample of cells. These cells are placed on a glass slide and stained with dye, so that they can be easily viewed under a microscope.  | Sample collection is easy; sample can be collected in field setting.  | Interpretation is largely subjective in nature; in early cancer cases it is extremely difficult to tell where exactly cancer cells came from; there may be only a small number of abnormal cells identifiable in a smear. |

\*Adapted from Bobdey S, Balasubramaniam G, Kumar A and Jain A. (2015). Cancer screening: should cancer screening be essential component of primary health care in developing countries? International Journal of Preventive Medicine, 6: 56.

## Sample Case Studies

### India (Saracci & Wild, 2016)

Over 8 years, a large randomized control trial was conducted in Kerala, involving almost 200,000 men over the age of 35 who belonged to 13 local populations. Each population was either assigned to three rounds of visual screening or to the standard health care offered in Kerala. Visual exams were conducted by university graduates (not medical students) who had been trained to recognize the lesions. Individuals who were found to have cancer/pre-cancer were referred for treatment. Screening followed by referral showed reduced mortality from cancer; among high-risk participants there was a 30% reduction in oral cancer mortality.

### Malaysia (Saleh et al., 2012)

Malaysian researchers aired a mass media campaign to increase awareness about oral cancer and the importance of screening. Pre-post tests were conducted to determine the level of awareness before and after the advertisements were aired. The advertisements showed visuals of early signs of oral cancer and informed the public that they should seek advice from a dentist if they observed these signs in their mouth. While researchers found that awareness around oral cancer was increased, the number of respondents who could identify the signs of oral cancer was still limited.

### Taiwan Multicentre Cancer Screening (TAMCAS) (Health Promotion Administration, Ministry of Health and Welfare, 2013)

The Health Promotion Administration offers free biennial oral cancer screening to individuals among high-risk groups (over the age of 30 who are smokers or had a areca nut chewing habit). Trial screening programs were initiated in 1985, and outreach services were scaled up to the national level in 1999. Data collected from these screenings are integrated into a national-level screening database that can be used for surveillance.

## Innovative Methods

### India Workplace Screening Trial (Warnakulasuriya et al., 2010)

People in rural areas often do not see the dentist regularly and thus need a way to access screening. A senior dental officer examined participants at their workplace during the work day to eliminate barriers to access. Photos were sent to a central office to confirm the diagnosis of pre-cancers, suggesting that technology can also reduce barriers to access.