

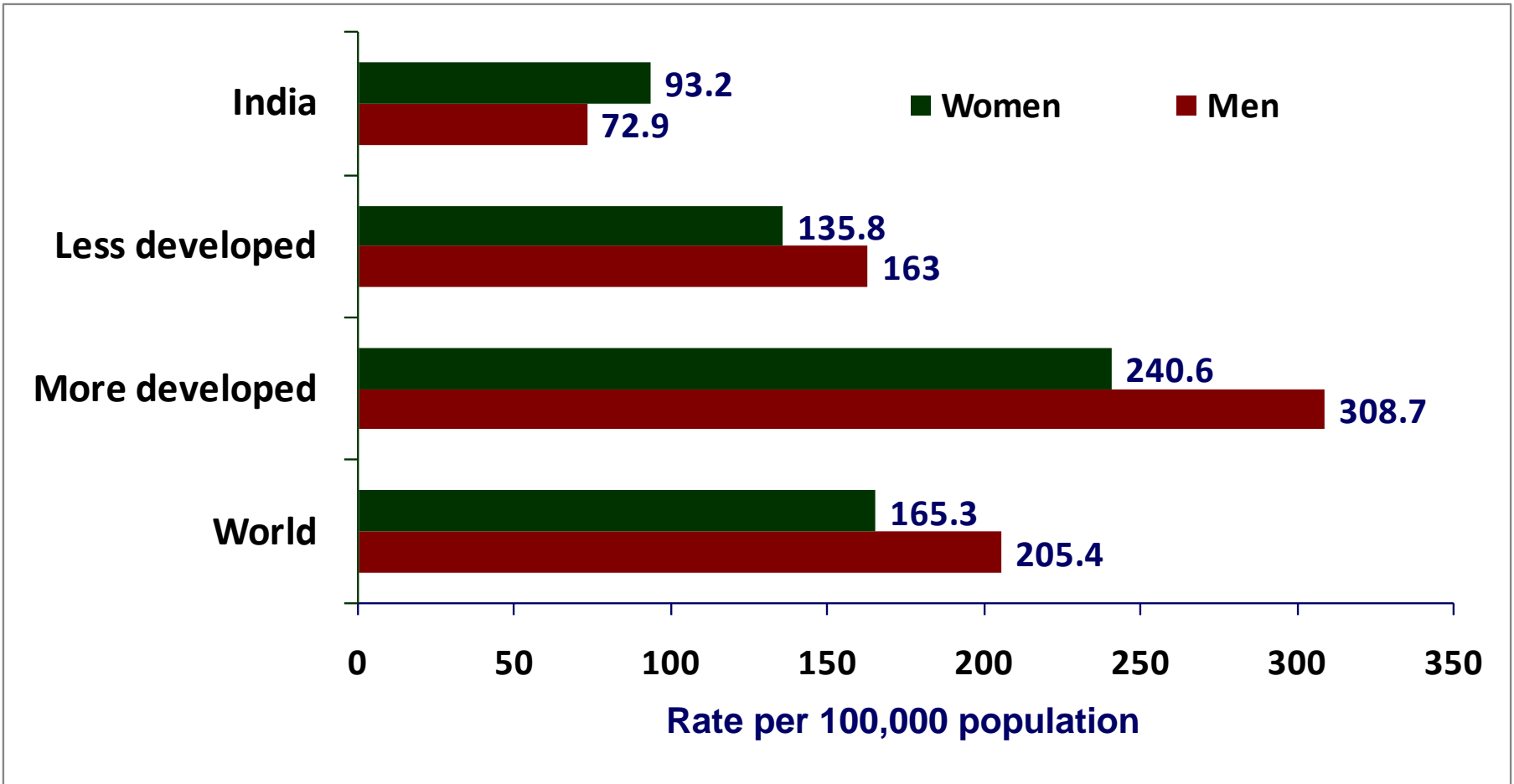
**GLOBAL BURDEN of ORAL CANCER and
RECENT TRENDS in ORAL CANCER INCIDENCE
with particular emphasis on INDIA**

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Cancer Institute (W.I.A), Chennai**

***Workshop on Public Health Implications on the current
status of Global Oral Cancer Prevention and Control in the
14th WORLD CONGRESS on PUBLIC HEALTH, held at
Kolkata, February 11, 2015***

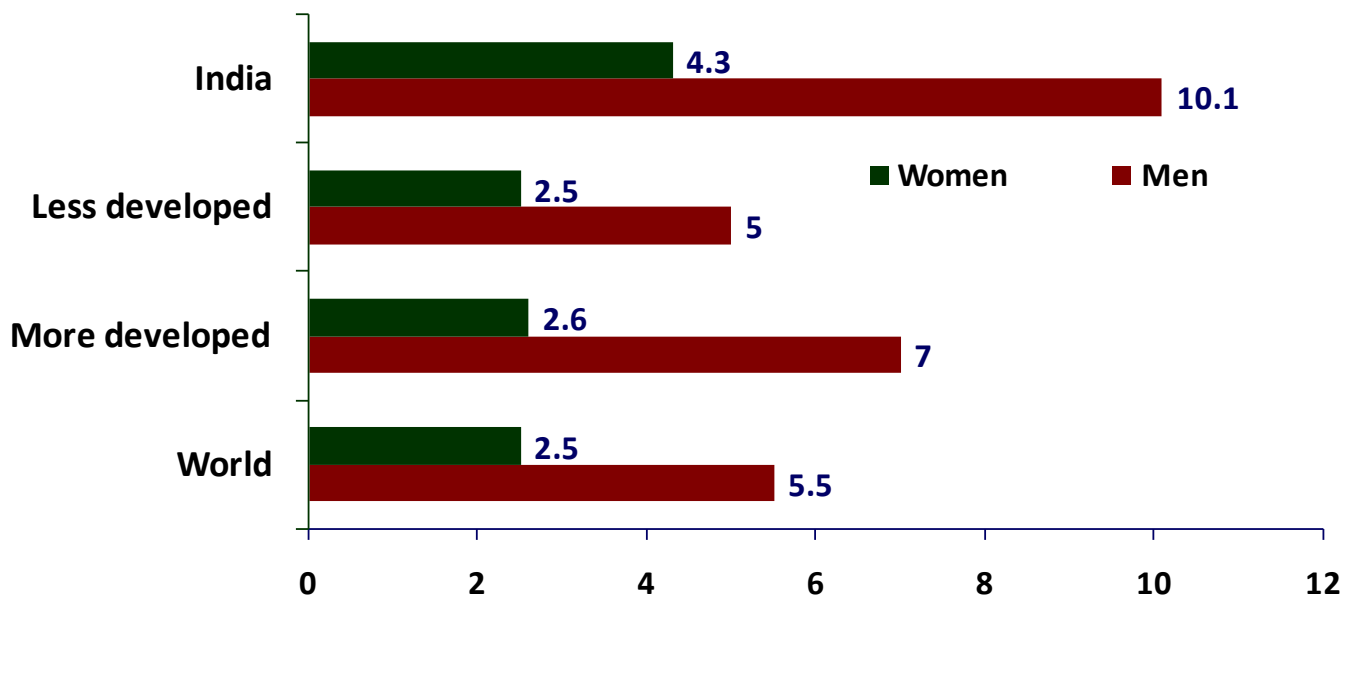
GLOBAL CANCER INCIDENCE BY GENDER, Year 2012



Unlike in most regions of the world, in India, cancer incidence is lower and a preponderance of women is forthcoming (<http://globocan.iarc.fr/>)

INTRODUCTION

- **Oral cavity cancers [ICD-10:C00-06]**
 - **Lip [C00]**
 - **Tongue [C01-02]**
 - **Mouth [C03-06]**
 - **Gum [C03]**
 - **Floor of Mouth [C04]**
 - **Cheek mucosa [C06]**
 - **Palate [C05]**



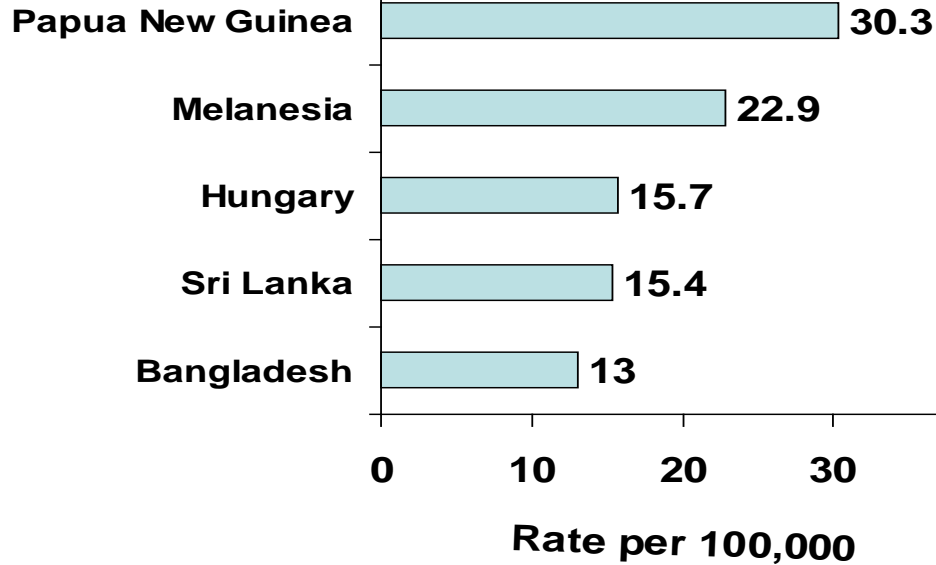
Global oral cancer statistics

Incident Oral Cancer Burden in India, Year 2012

	Male	Female	M+F
Pop (in Millions)	637.2	599.8	1237.0
New Cancers per year	54,000	23,000	77,000

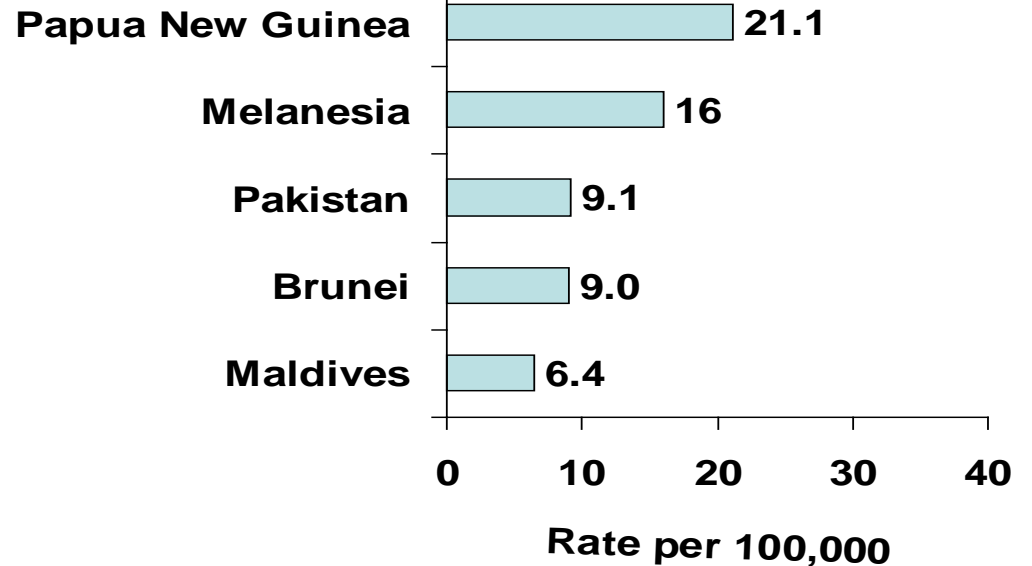
Unlike in most regions of the world, in India, oral cancer incidence is higher than average global rates; male preponderance is seen (<http://globocan.iarc.fr/>) **India's share of global oral cancer burden is 26%**

ORAL CANCER INCIDENCE – TOP 5 COUNTRIES, Year 2012



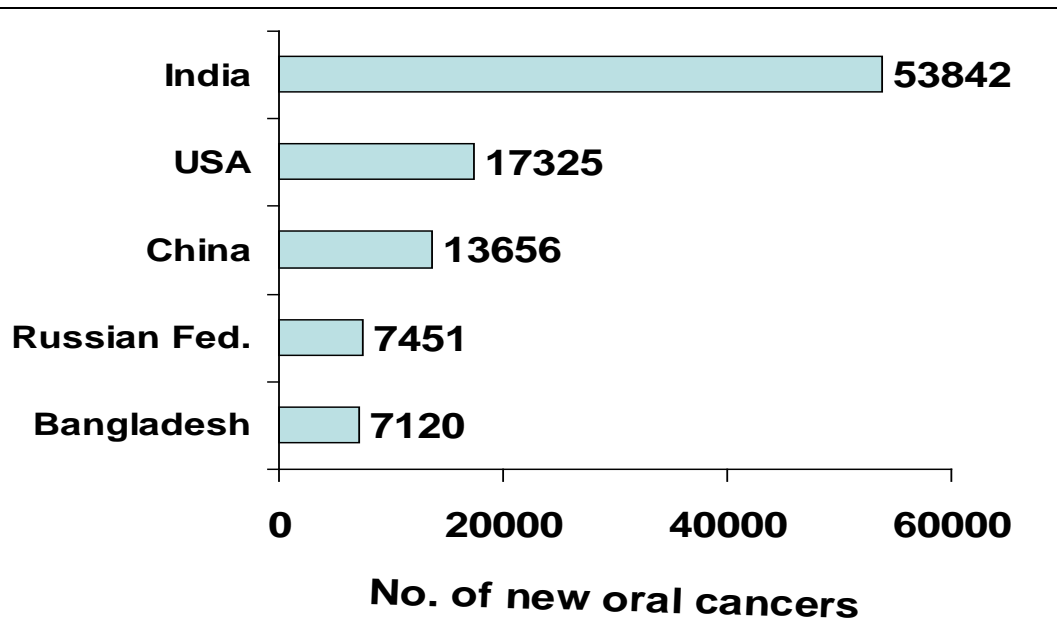
← **Male – India ranks 14th**

Source: GLOBOCAN, 2012



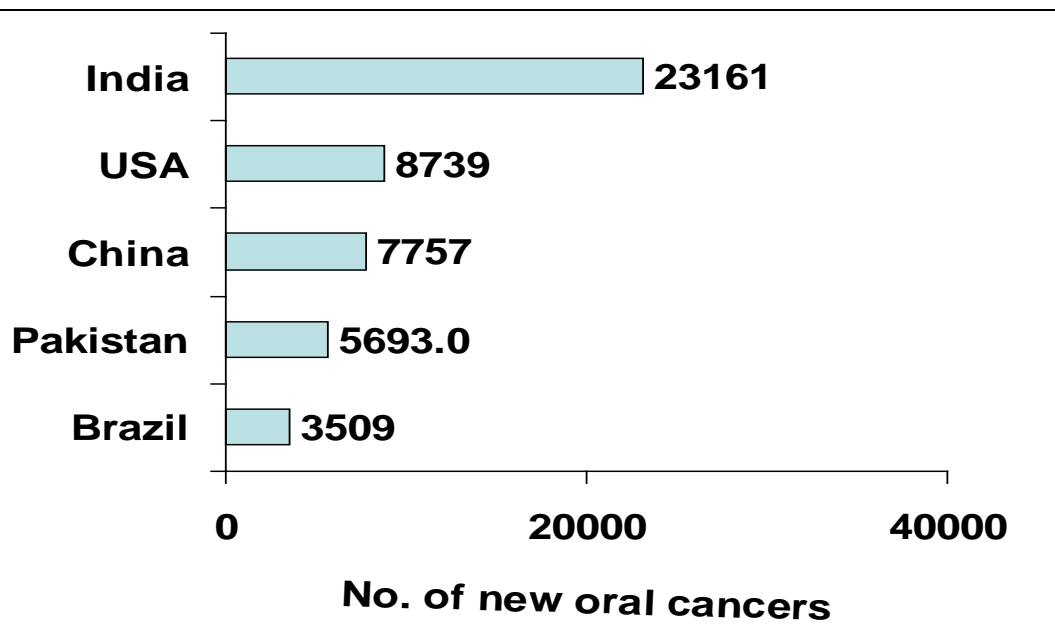
Female – India ranks 13th →

ORAL CANCER BURDEN – TOP 5 COUNTRIES, Year 2012



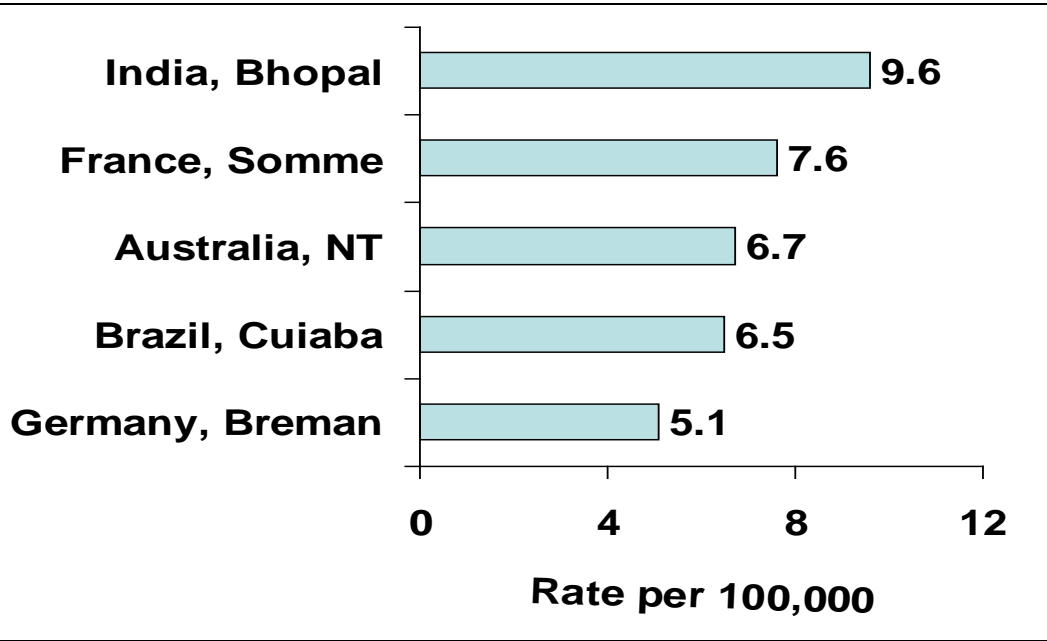
Male – India ranks 1st

Source: GLOBOCAN, 2012



Female – India ranks 1st

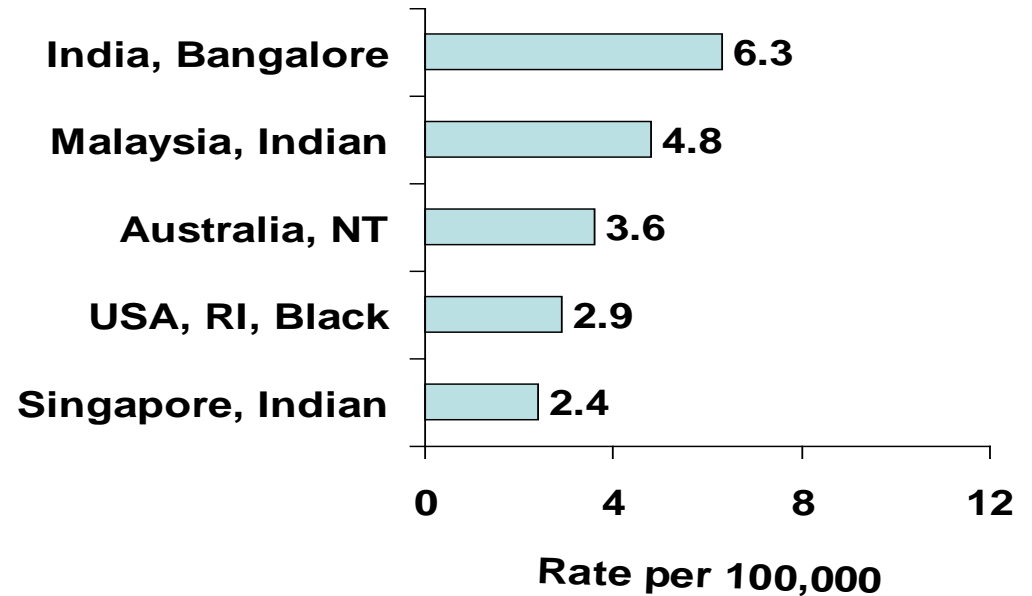
MOUTH CANCER INCIDENCE – TOP 5 COUNTRIES, 2003-07



Mouth, Male

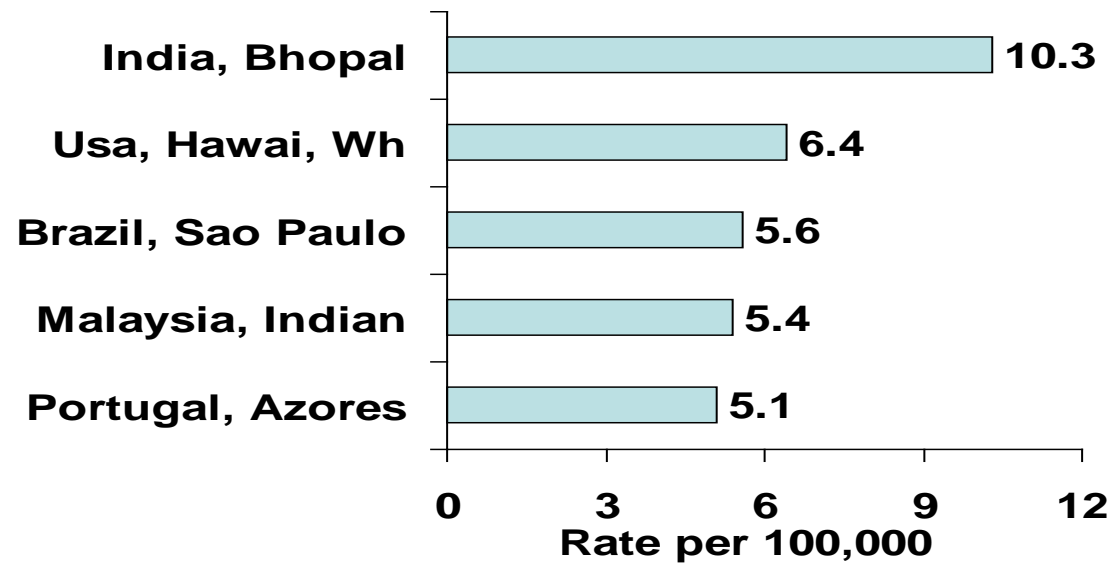
Source: CI5, Vol 10, 2014

Mouth, Female



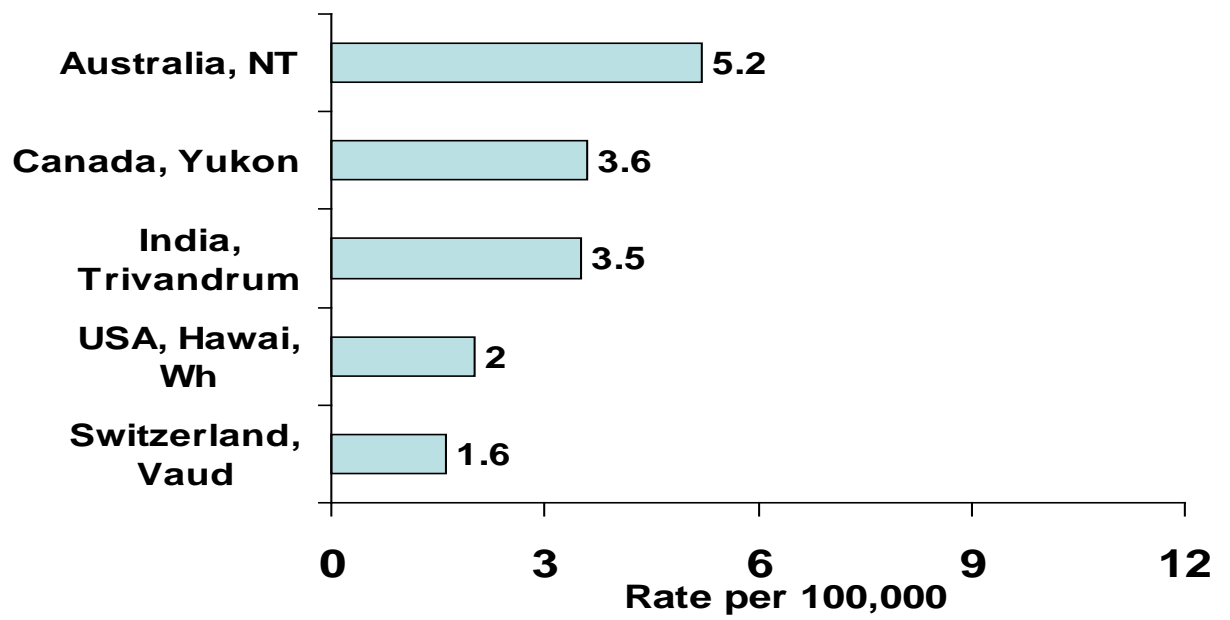
TONGUE CANCER INCIDENCE – TOP 5 COUNTRIES, 2003-07

Tongue, Male



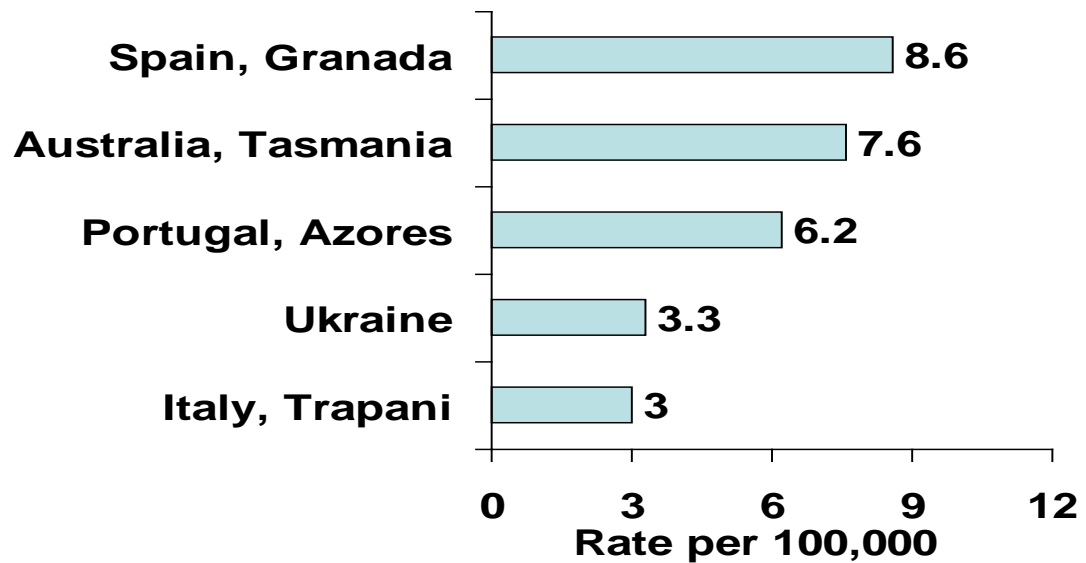
**Source: CI5,
Vol 10, 2014**

Tongue, Female



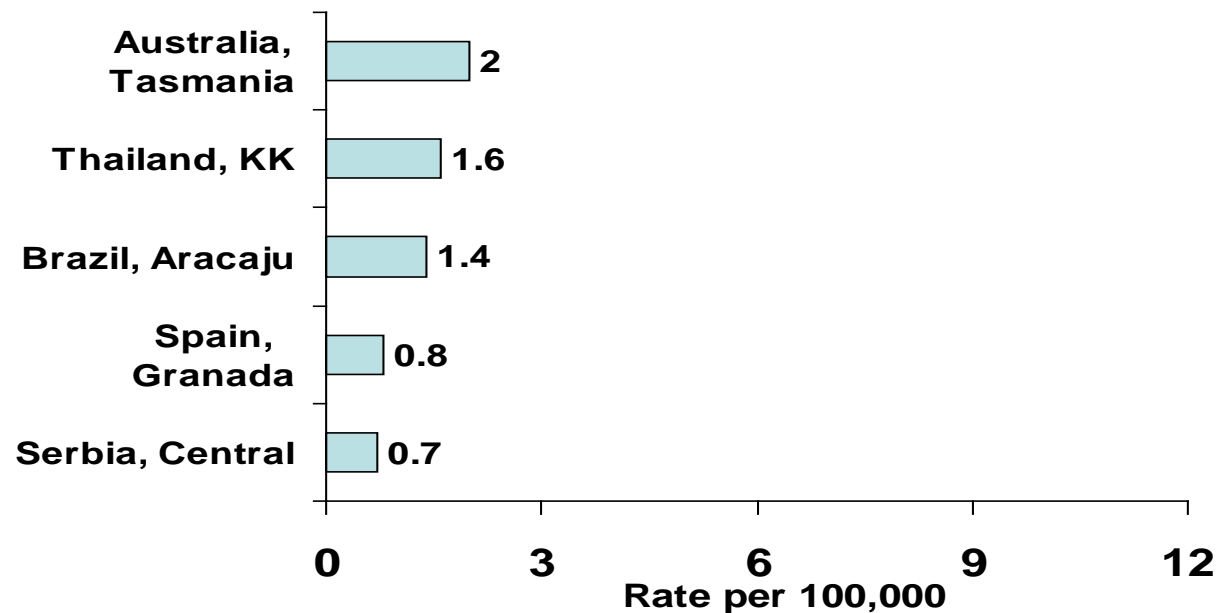
LIP CANCER INCIDENCE – TOP 5 COUNTRIES, 2003-07

Lip, Male



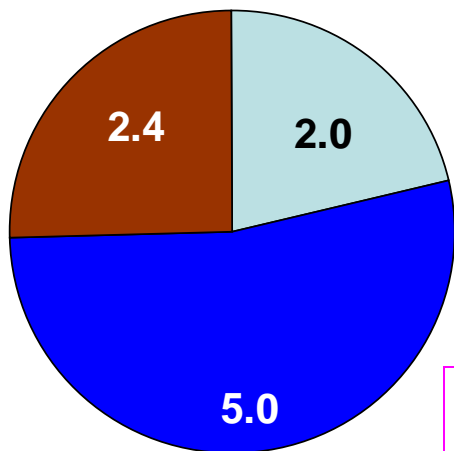
**Source: CI5,
Vol 10, 2014**

Lip, Female

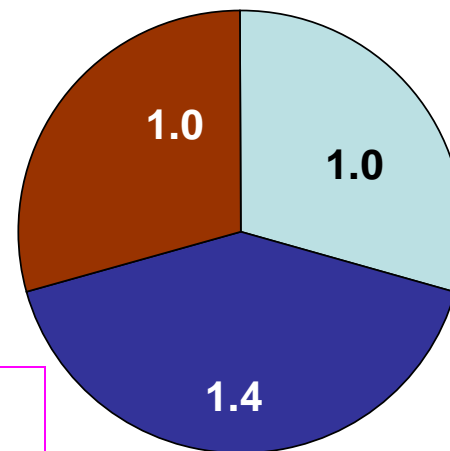


AGE STANDARDIZED RATES OF ORAL CANCERS BY SITE, 2003-2007

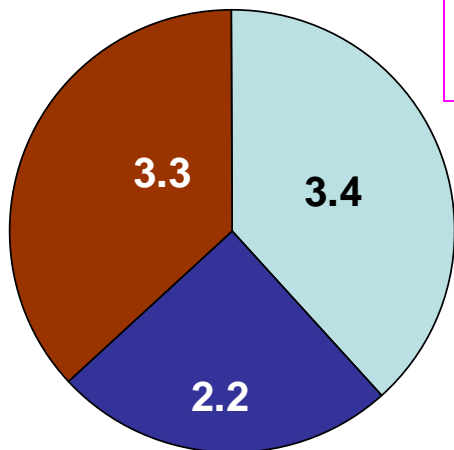
Australia, Men



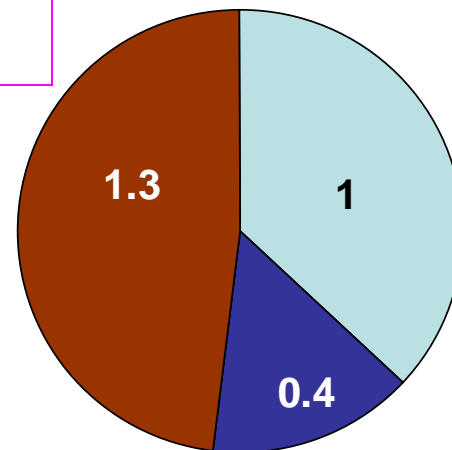
Australia, Women



Legend:
Mouth (light blue)
Lip (dark blue)
Tongue (brown)

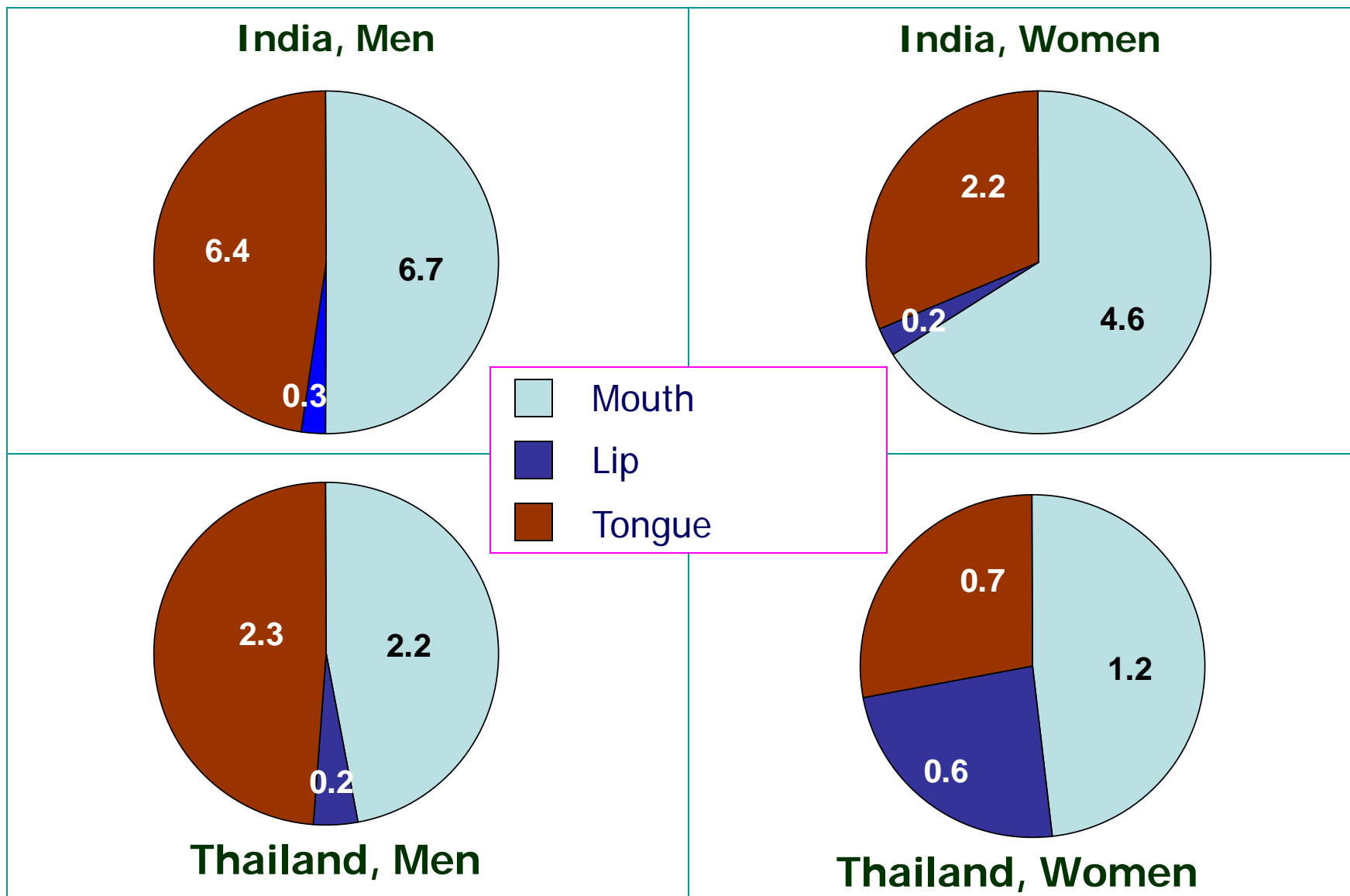


Spain, Men



Spain, Women

AGE STANDARDIZED RATES OF ORAL CANCERS BY SITE, 2003-2007

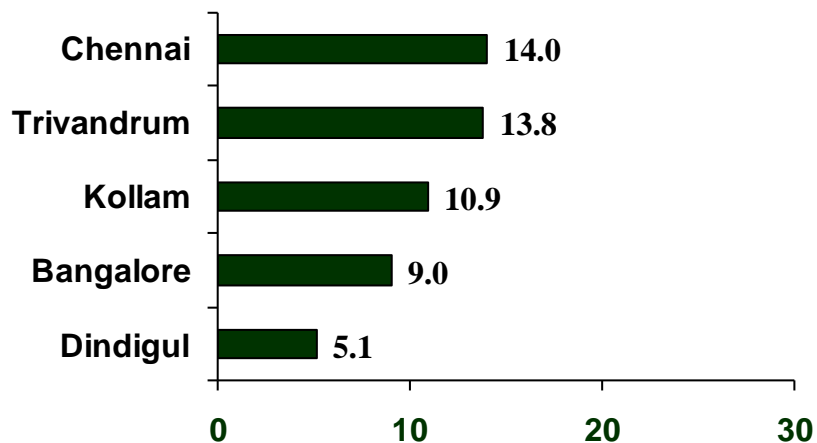


Common cancers in India, Year 2012

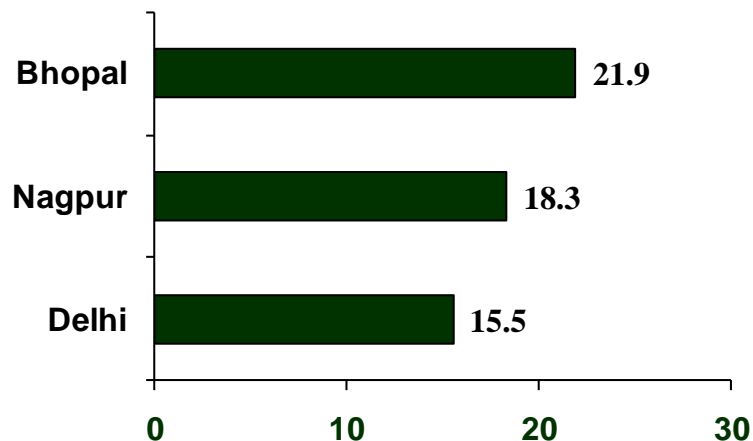
SITE-Men	ASR	Range	SITE-Women	ASR	Range
Lung	11.0	2.4 – 45.7	Breast	25.8	7.2 – 36.6
Oral	10.1	3.5 – 29.3	Cervix	22.0	5.6 – 25.1
Stomach	8.6	1.1 – 64.2	Large bowel	5.1	0.9 – 6.9
Large bowel	7.2	1.9 – 9.2	Ovary	4.9	1.5 – 10.7
Pharynx	6.3	2.2 – 27.7	Oral	4.3	1.2 – 10.8
Oesophagus	5.4	2.9 – 71.4	Stomach	3.7	0.8 – 31.2

- **Common cancer pattern is different from that seen in more-developed countries; Oral cancers are ranked within the top 5 in both sexes**
- **Regional variation within India is evident given the very wide range of values from individual registries**

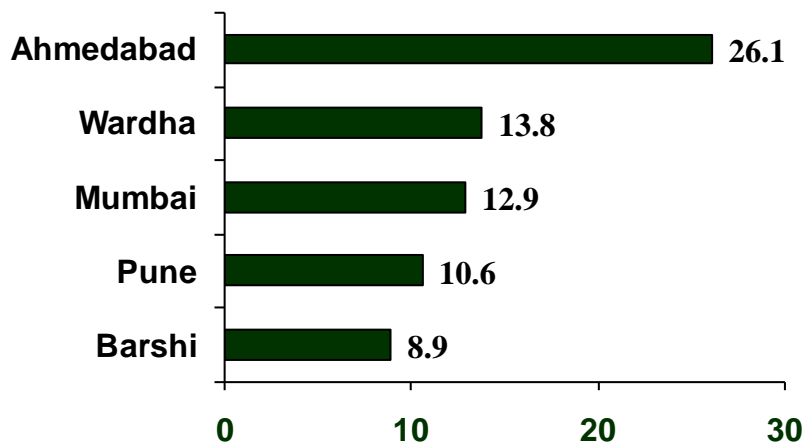
Oral Cancer Incidence by Regions, India, MEN, Year 2009-11



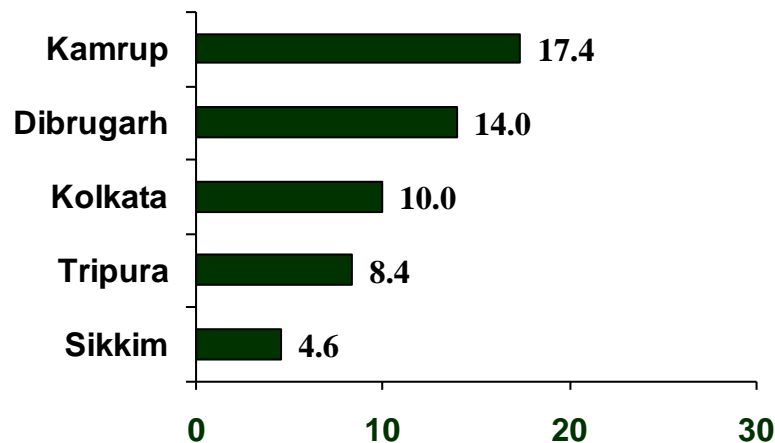
South



Central & North

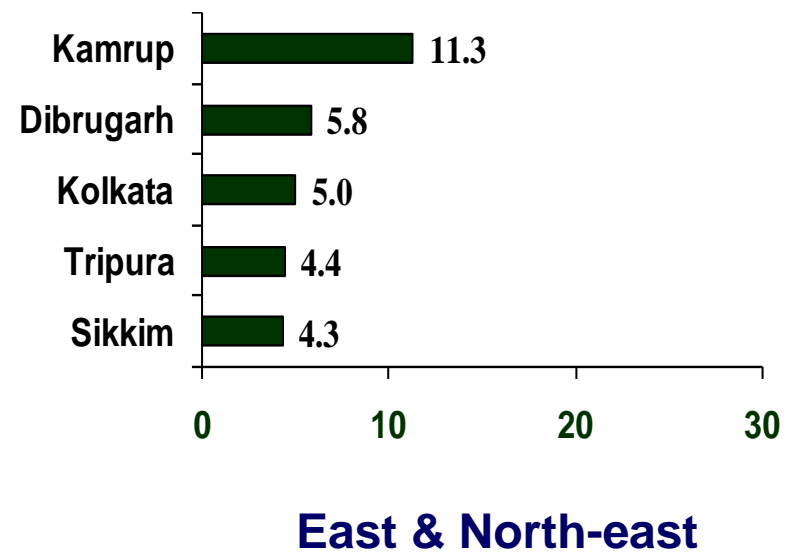
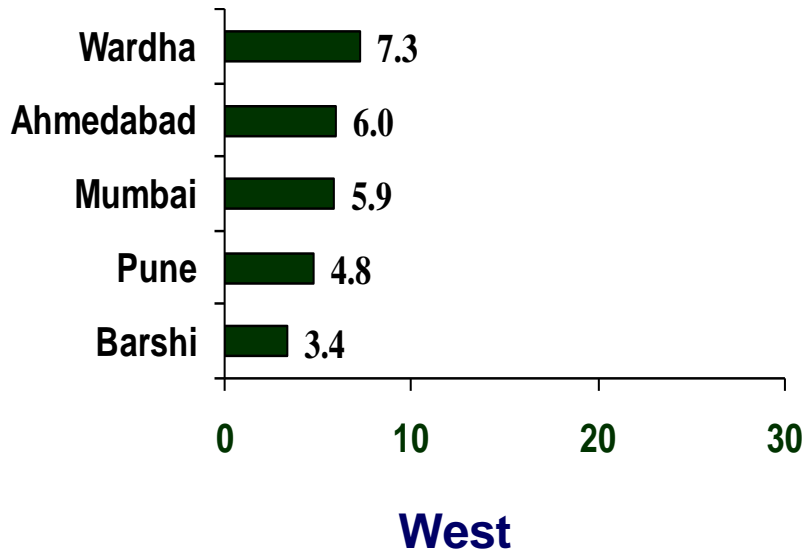
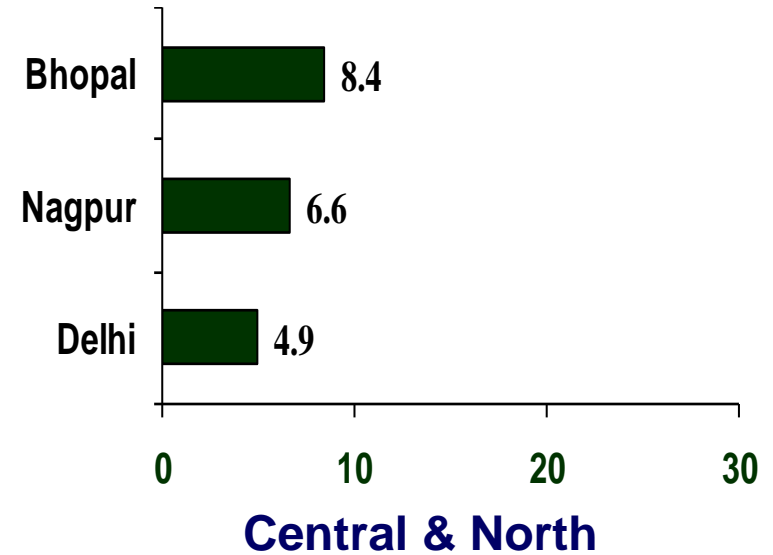
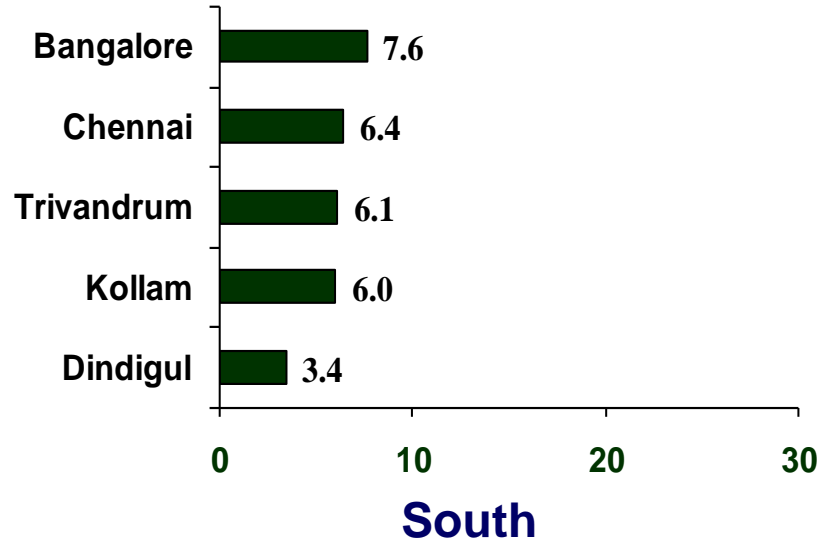


West

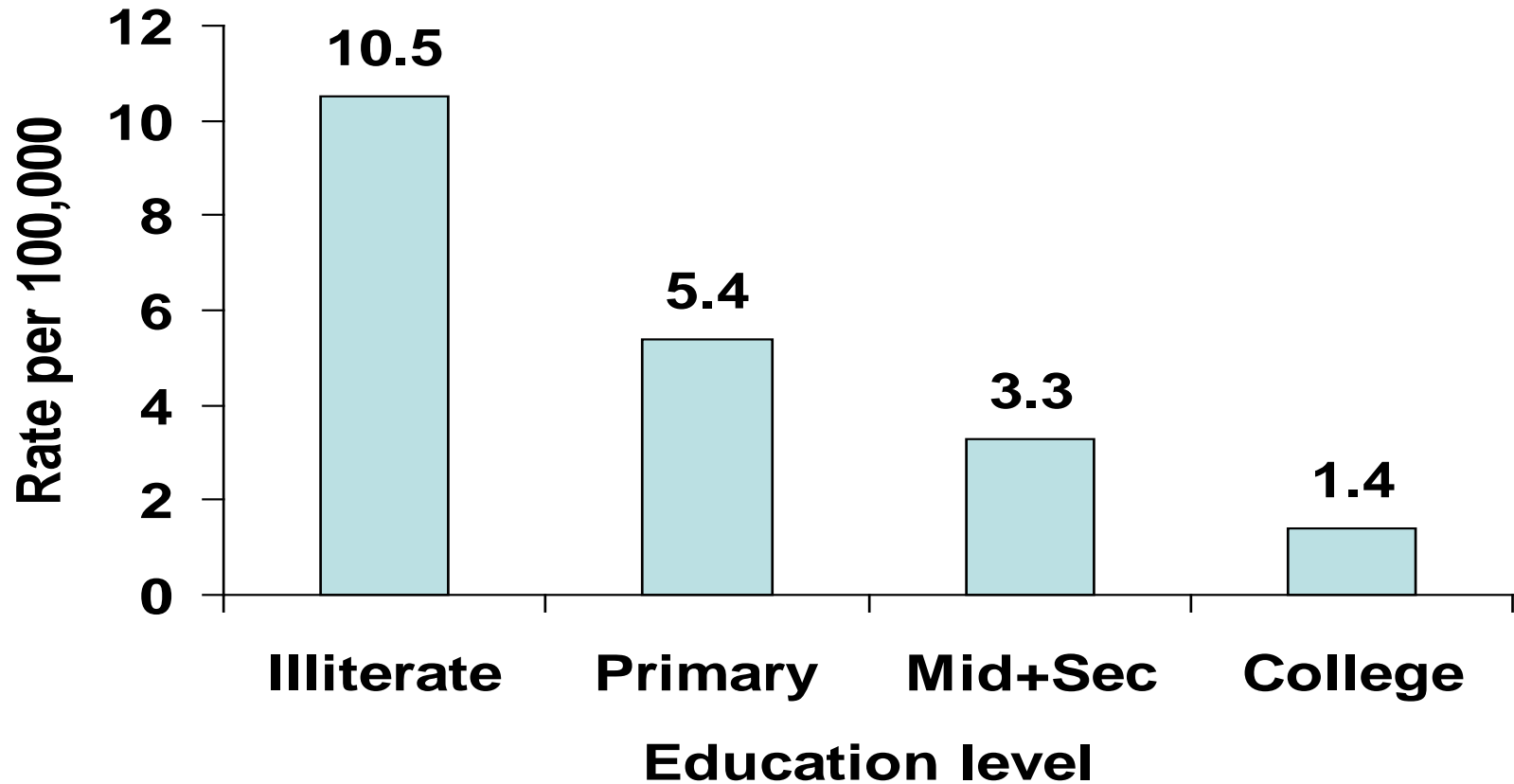


East & North-east

Oral Cancer Incidence by Regions, India, WOMEN, Year 2009-11



INCIDENCE OF ORAL CANCER BY EDUCATION LEVEL CHENNAI, 1998-2004

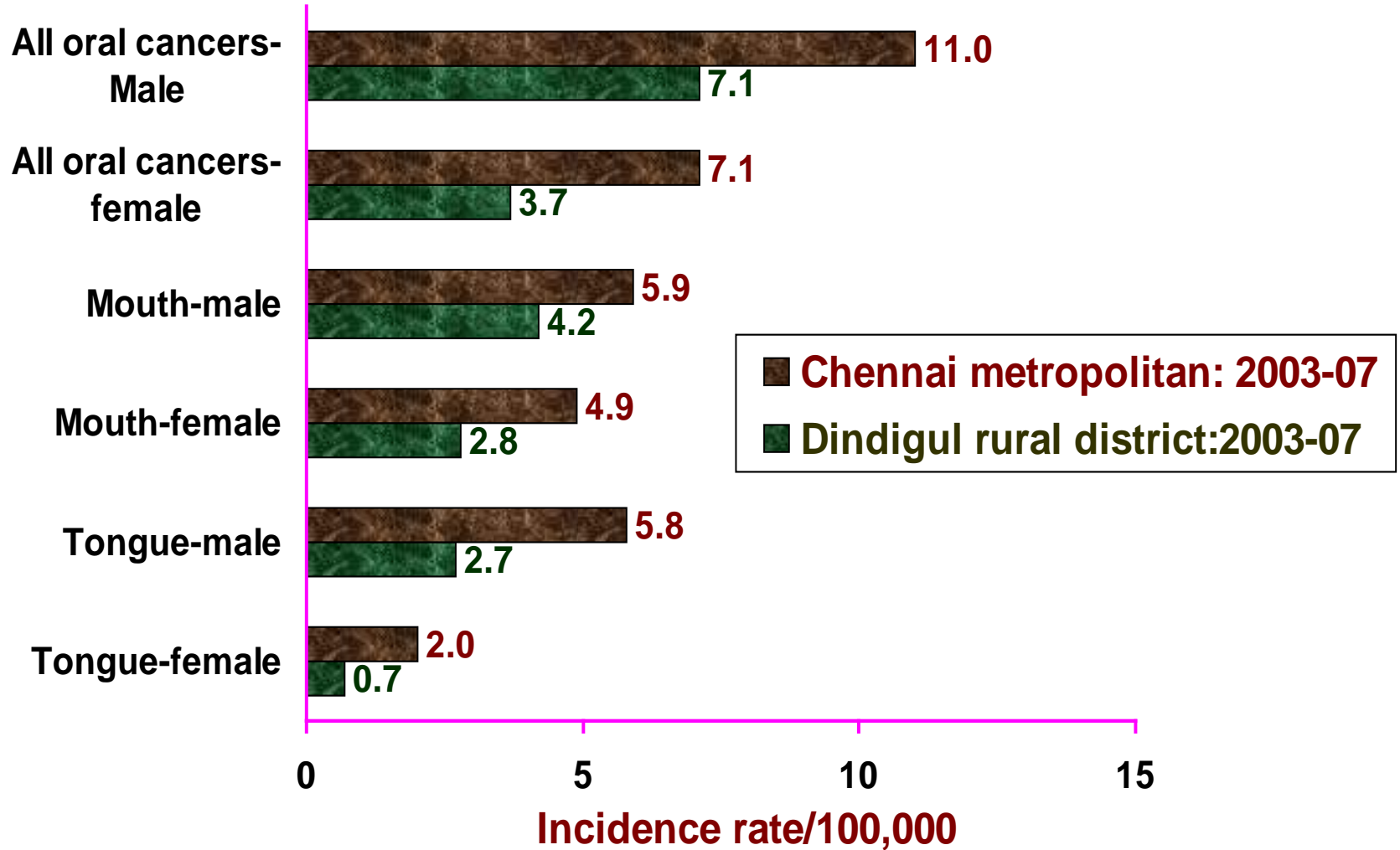


An inverse relationship between socio-economic status and oral cancer incidence is forthcoming

Incidence ↓ as education level ↑

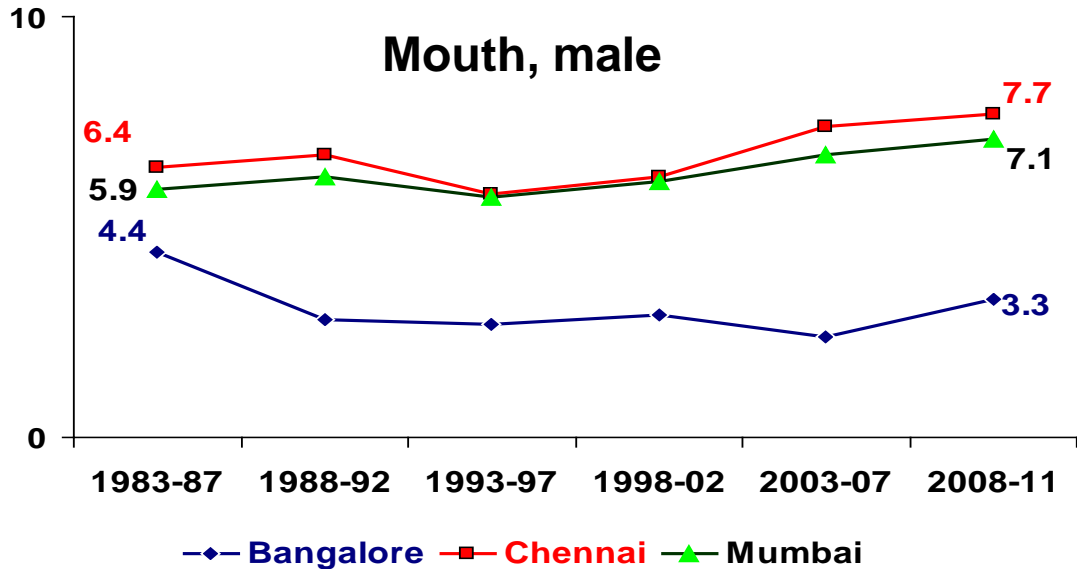
This suggests an association between lifestyle factors and oral cancer incidence

Oral cancers in Tamil Nadu state: Urban vs. rural



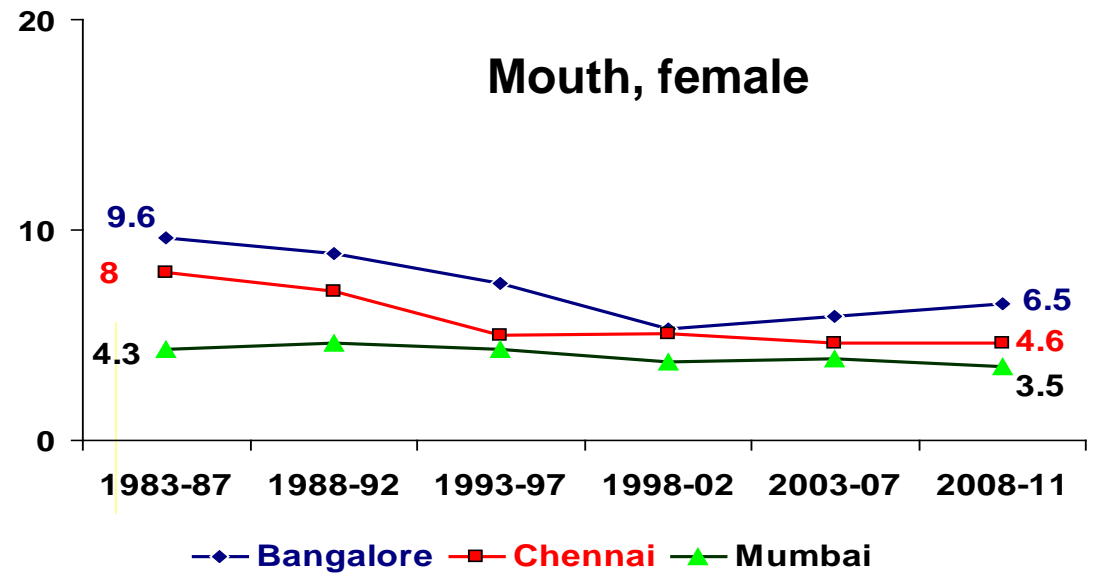
Incidence more in Chennai by 1-2 folds than Dindigul district
? Environment factors especially ETS
? Lifestyle factors especially diet and physical exercise

TREND OF MOUTH CANCERS, INDIA, 1983-2011

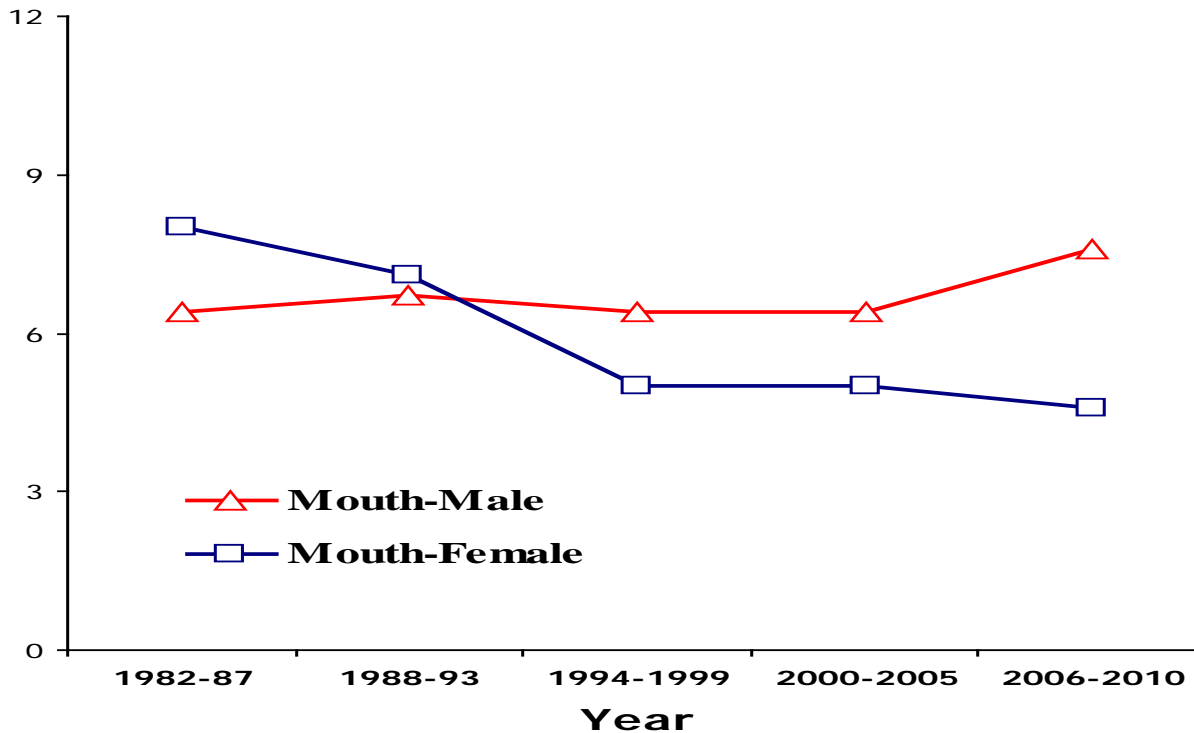


↑ trend in latest period

↓ trend in over time



Trend of mouth cancer, Chennai, 1982-2010

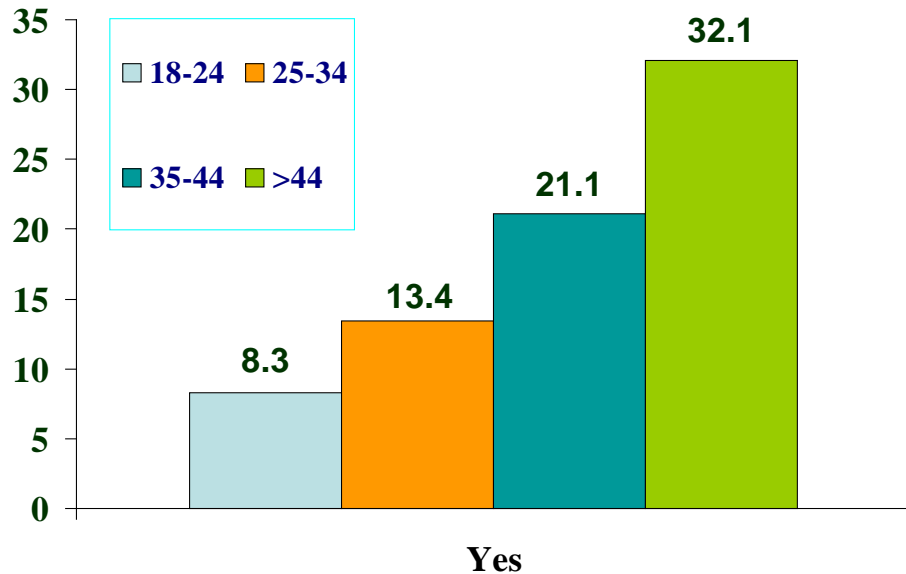


• Mouth cancer

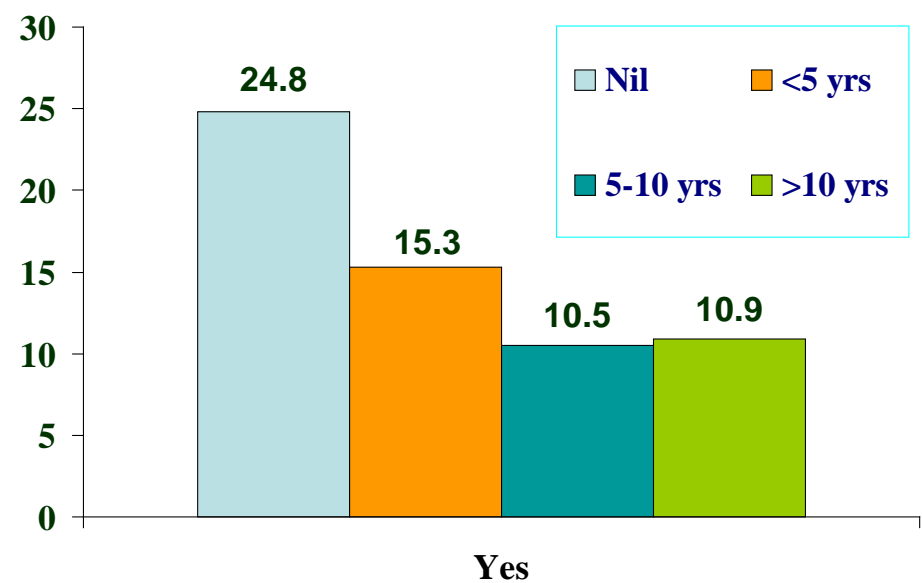
- Was ranked 3rd in 1982 as well as in 2010 among men-No change
- Was ranked 3rd in 1982 and ranked 6th in 2010 in women
- Trend in men: Incidence rate static till 2003 but ↑ in recent years
- Trend in women: Incidence rate is decreasing over the years
- Average annual percent change: 1% ↑ in men; 1.5% ↓ in women

Tobacco habit% in women aged 18-65 in TAMIL NADU

Age group



Education



Mouth cancer is decreasing among women

Tobacco chewing is inversely related to education

Increase in literacy levels is observed in women over time

Mouth cancer in men remained static until 2005 but ↑ in recent years

No major change in literacy levels in men

Increase in tobacco chewing in young urban men in recent years is observed

(Reddy et al., 2006 in Lancet)

Predicted cases, incidence and %change in common cancers in Chennai, India, in 2012-2016 compared to 2002-2006

Predicted pattern for 2012-16	Average no. of cases/year		%change -Total	%change due cancer risk	%change due to population Effect
	2004	2014			
Women					
Mouth	93	98	+5.4	- 8.6	+14.0

The predicted decrease in mouth cancer incidence among women in 2014 compared to 2004 that is attributable to site-specific risk is offset by demographic effect resulting in no let up in burden of cases

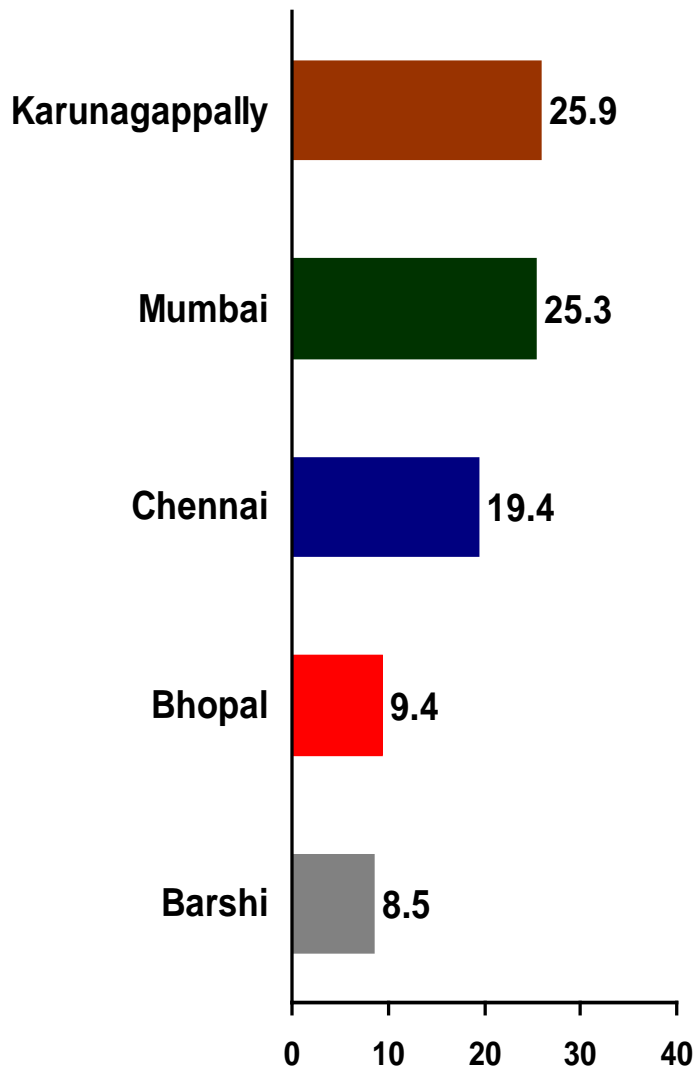
Average annual new cases of selected cancers Projection for Tamil Nadu, 2012-2016

Cancer	Number <i>per year</i>	% to total cancers
Breast	7,724	25.9
Cervix	7,169	24.0
Oral	5,326	9.7
Stomach	3,683	6.7
Pharynx/other oral	3,064	5.6
Lung	2,749	5.0

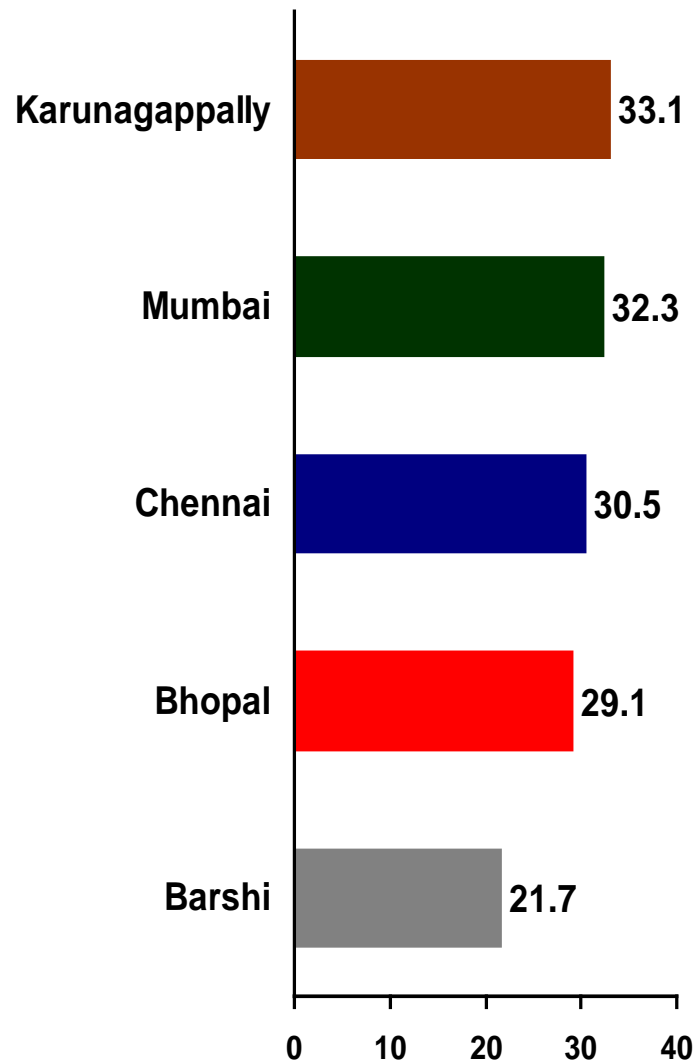
5-Year absolute survival%, PBCRs in India, 1990-1999

(cancers treated and not treated are both included)

Tongue

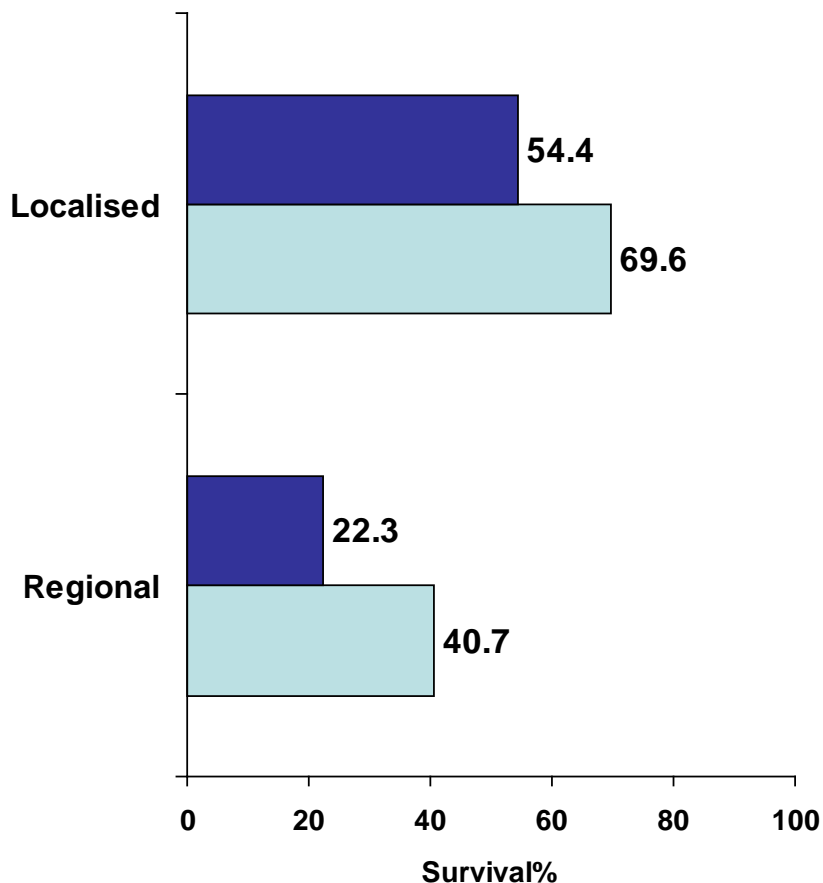


Mouth



Intra country variation in cancer survival highlights the inequity in access to and/or development of cancer treatment services or early detection practices

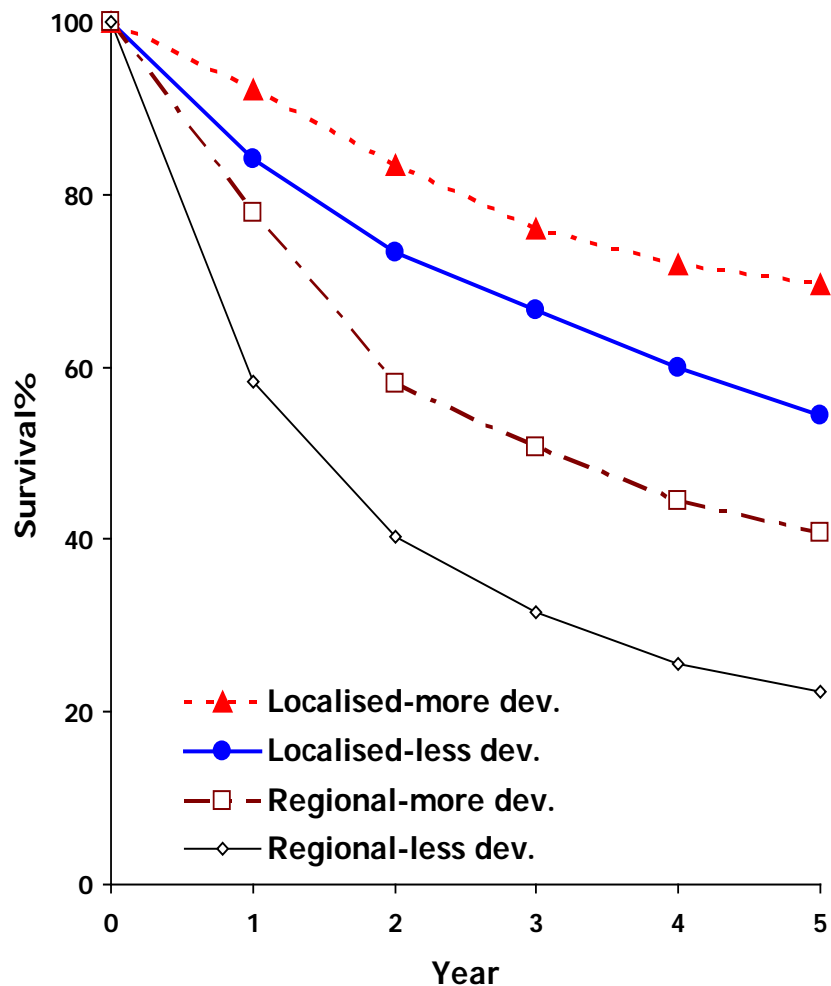
5-year absolute survival for localised and regional extent of disease among more and less developed health services – Oral cancer



■ Less developed health services-Thailand, India etc.

■ More developed health services (Singapore & Turkey)

Absolute survival for localised and regional extent of disease among more and less developed health services of oral cancer



-▲- Localised-more dev.

● Localised-less dev.

-□- Regional-more dev.

◇ Regional-less dev.

	More dev.		Less dev.	
% cases	Loc.	Reg.	Loc.	Reg
	34.0	19.0	25.0	60.0

**Trend of average 5-year overall survival of treated cases of oral cancers
Cancer Institute (WIA), Chennai, 1982-2009**

Cancer	1985-1989	1995-1999	2006-2009
Oral cavity	38.8	38.7	45.0

The trend in average 5-year overall survival of all common cancers treated between 1985–1989, 1995–1999 and 2006-2009 showed an increase in the latest period

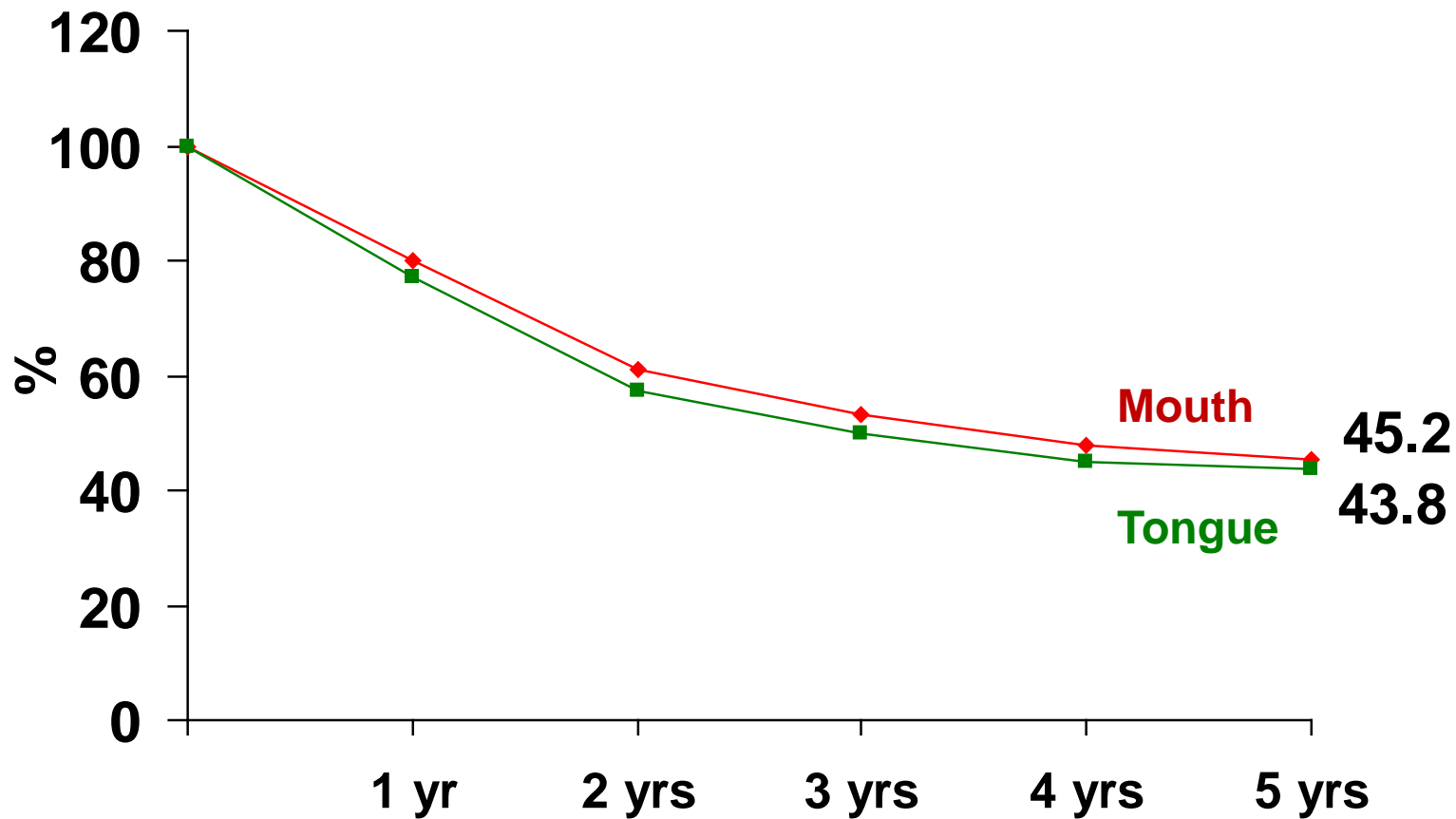
**Stage distribution (%) of oral cancer patients
treated at Cancer Institute (WIA), Chennai, 2006-2009**

Stage	TONGUE (496)	MOUTH (745)
I	15.7	2.8
II	23.4	13.8
III	25.4	35.8
IV	35.3	47.8
Unkown	0.2	0.4

**Majority were in
Stage IV for both cancers**

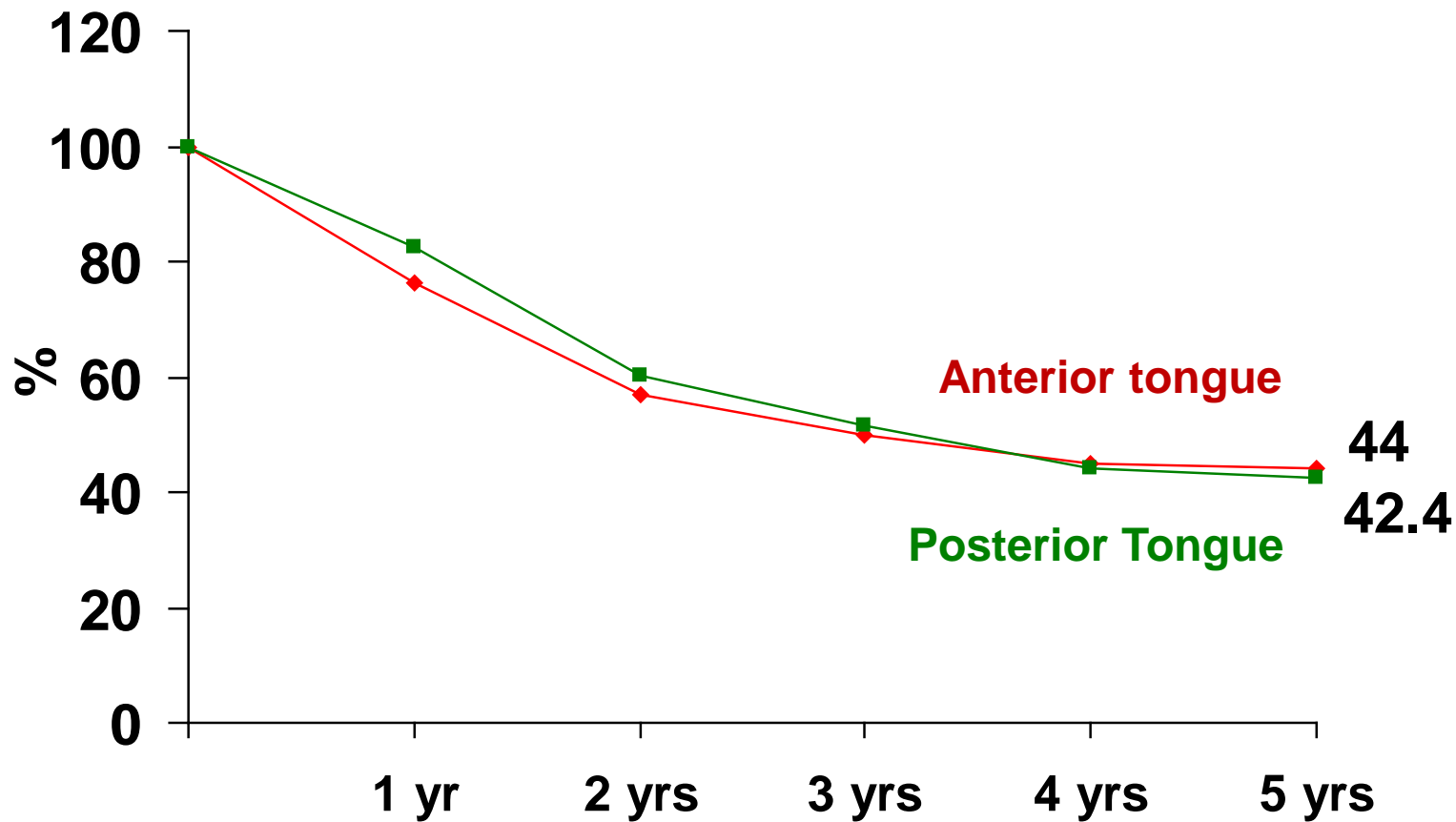
OVERALL SURVIVAL% of ORAL CANCERS, Treated at Cancer Institute (W.I.A), 2006-09

(n=1,241)

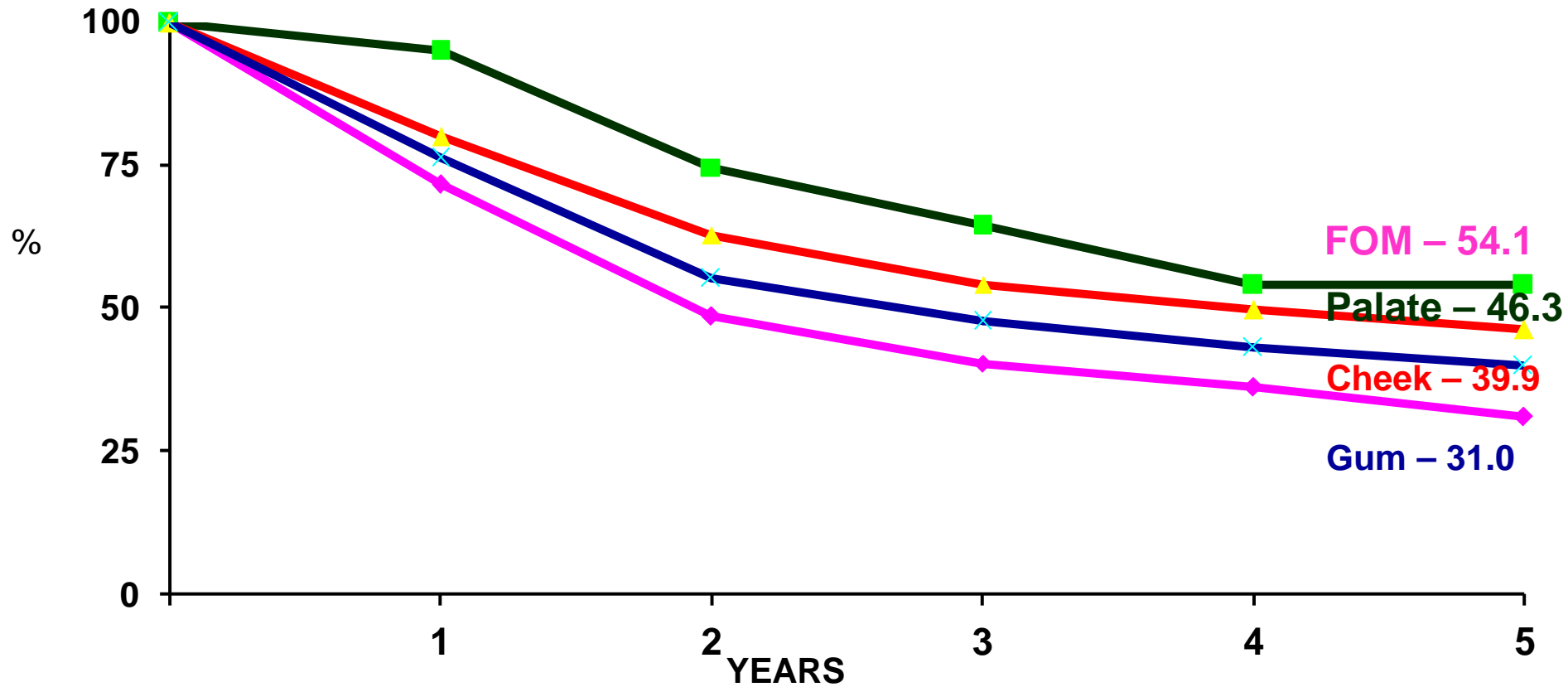


OVERALL SURVIVAL% of TONGUE CANCERS, Treated at Cancer Institute (W.I.A), 2006-09

(n=1,241)



OVERALL SURVIVAL% of MOUTH CANCERS, Treated at Cancer Institute (W.I.A), 2006-09



Five-year survival% comparison – Oral cancers

Cancer	Rural India* (Dindigul dt) 2003	Urban India* (Chennai city) 1990-99	CI (treated cases) 2000-2001	US-SEER* (White) 2002
Mouth	33	31	35	55
Tongue	27	19	37	56

Source: Swaminathan et al 2009 in Cancer Epidemiology; SEER Cancer Statistics Review 1975-2003, NCI, USA;

*** Includes all cases treated or not; CI: Cancer Institute (WIA), Chennai**

SUMMARY

- **Oral cancers are common in several regions of the world where tobacco use, alcohol consumption are high; India accounts for 26% of global oral cancer burden**
- **The variation in incidence of cancers by subsite of oral cavity is mostly related to the distribution of major risk factors: tobacco or betel quid chewing, cigarette or bidi smoking and alcohol consumption**
- **Overall incidence rates over 1982-2011 in India show**
 - **↑ trend in males and ↓ trend in females**
- **Overall trends are reflection of underlying trends in cancers of major sub-sites which seem to be related to the changing prevalence of risk factors**
- **Advanced stage at presentation coupled with less developed health services resulted in poor survival from oral cancers**