

EPIDEMIOLOGY OF HUMAN PAPILLOMAVIRUS (HPV) ASSOCIATED CANCERS IN FLORIDA (1981-2009) ANALYSIS FROM A POPULATION-BASED CANCER REGISTRY



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INTRODUCTION

-Human papillomaviruses (HPV) are a group of more than 150 related DNA viruses capable of infecting humans.

-About 79 million Americans are currently infected with HPV, and 14 million people become newly infected each year.

-According to the National Cancer Institute, HPVs cause virtually all cervical cancers and have been linked to anal cancers and some vaginal, vulvar, penile, bladder and oropharyngeal cancers.

OBJECTIVES

We studied the trend of HPV-associated cancer incidence from 1981 to 2009 in the Florida adult population.

METHODS

-We analyzed data from population-based Florida cancer registry, Florida Cancer Data System (FCDS) from 1981 to 2009 linked with US census 2000 data.

-Total sample size N=151,673. Inclusion and exclusion:

Adult Florida patients (>=18 yrs) only;

Patients younger than 18 or non-Florida residents or with carcinoma in situ were excluded;

-The earliest reported cancer was set as the primary cancer site if patients had multiple diagnosed HPV-associated cancers.

-Incidence rate was age-adjusted by US census 2000 data.

Table 1. Sociodemographic characteristics of Patients with HPV-associated Cancers

		Tongue	Tonsil	Anal	Bladder	Cervix	Vagina	Vulva	Penis
All	N=151,673	14,193	7,928	7,351	88,317	24,626	1,788	5,647	1,823
Vital Status	Dead	9.3	4.8	4.0	64.1	12.3	1.3	3.0	1.2
	Alive	9.4	5.9	6.2	49.0	22.4	1.0	4.9	1.2
Gender	Male	11.3	6.8	3.2	76.6	N/A	N/A	N/A	2.1
	Female	6.8	3.2	7.1	33.7	37.9	2.7	8.7	N/A
Race	White	9.3	5.1	4.8	60.6	14.1	1.1	3.8	1.1
	Black	9.4	7.0	4.9	28.7	41.9	2.4	3.2	2.5
	Other	11.6	4.5	4.5	33.0	38.3	0.3	3.2	2.0
Ethnicity	Non-Hispanic	9.4	5.3	4.7	59.1	15.3	1.2	3.8	1.1
	Hispanic	8.8	4.5	6.8	48.5	25.6	1.2	2.8	1.8
SES	Lowest	10.0	6.0	5.5	44.9	26.9	1.5	3.5	1.7
	Middle-low	9.3	5.5	5.0	56.3	17.4	1.2	3.9	1.3
	Middle-high	9.1	4.9	4.6	62.5	12.9	1.0	3.8	1.0
	Highest	9.9	5.0	4.8	63.2	11.6	1.1	3.6	0.9
Stage	Localized	5.2	1.5	3.6	71.6	12.2	0.8	3.8	1.2
	Regional DE	14.8	11.6	6.1	32.5	28.1	1.6	4.0	1.3
	Regional LN	34.5	28.8	6.5	9.3	13.0	0.4	6.0	1.5
	Distant	15.6	9.2	7.6	36.2	25.4	3.2	2.2	0.7

Fig 1a. HPV-Associated Cancers Diagnosis by Age

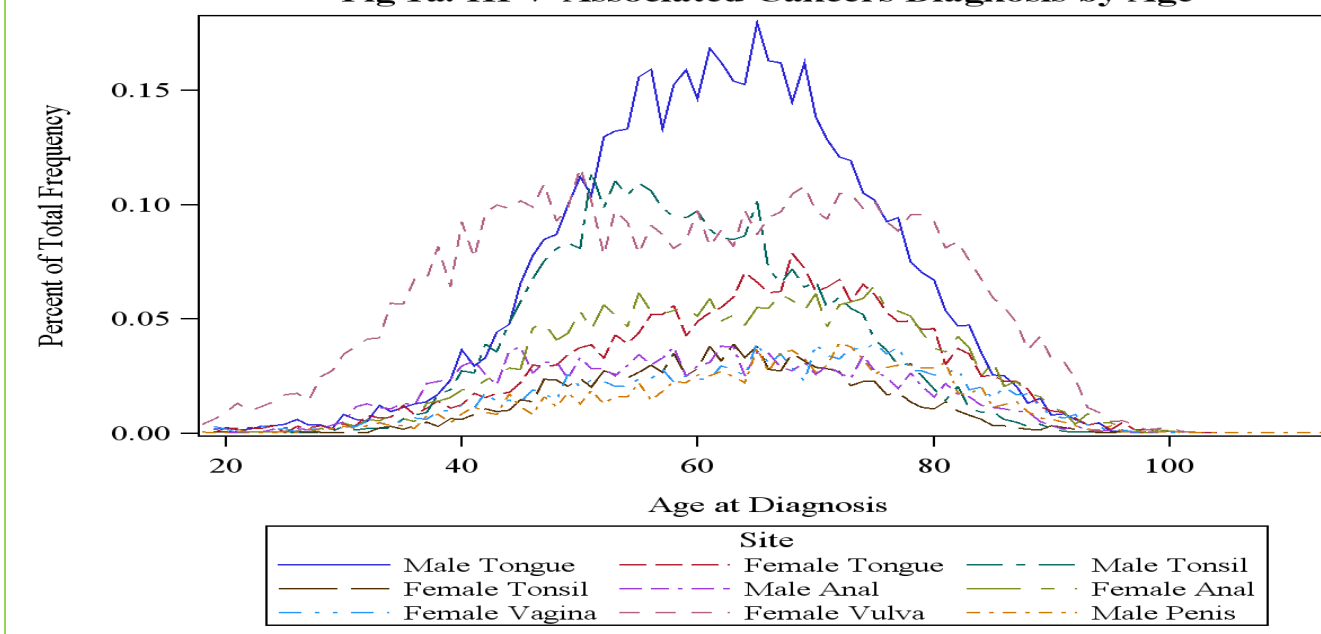


Fig 2a. HPV-Associated Cancers Incidence Rate by Year

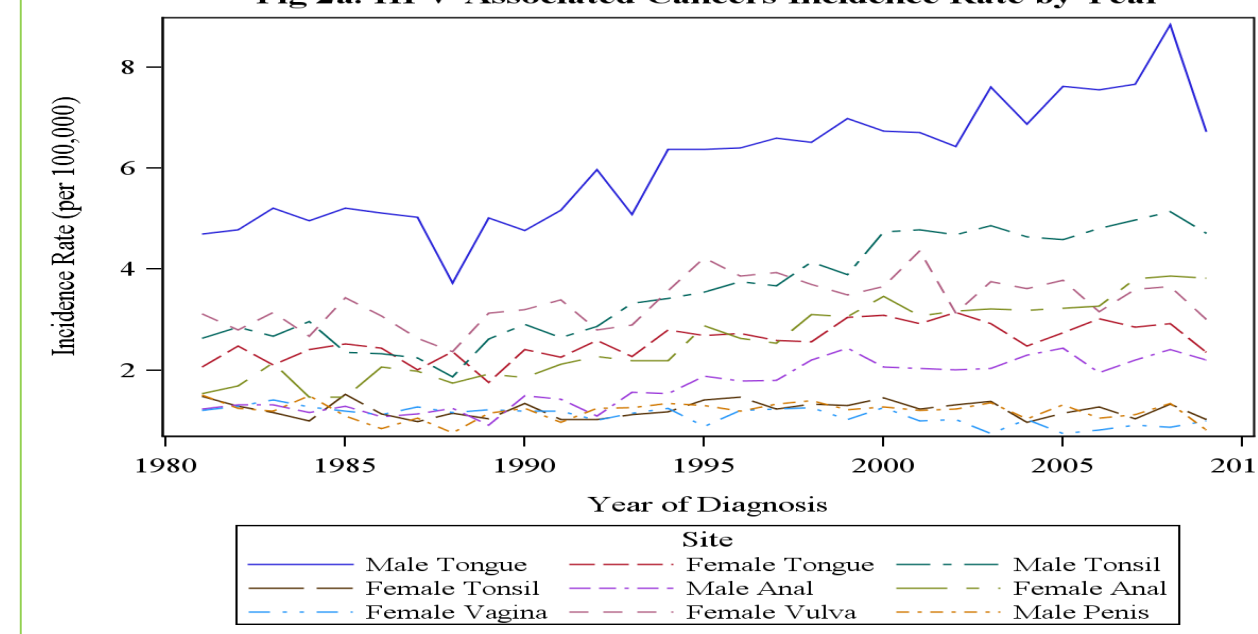


Fig 1b. HPV-Associated Cancers Diagnosis by Age

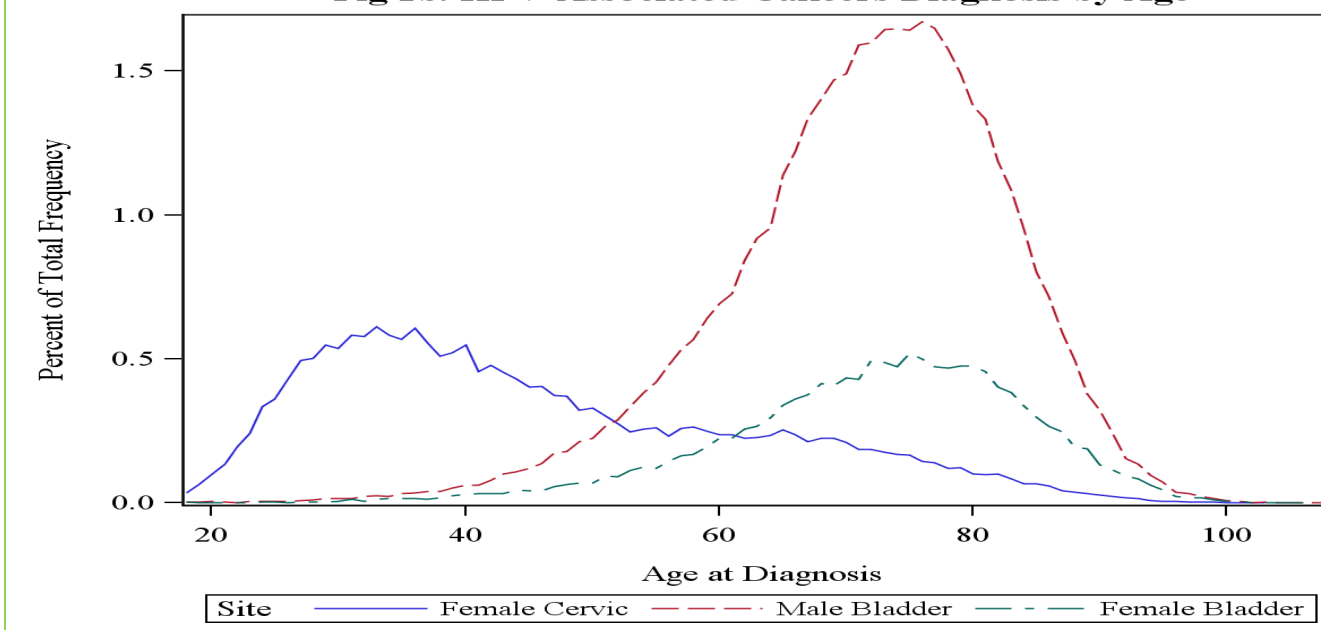
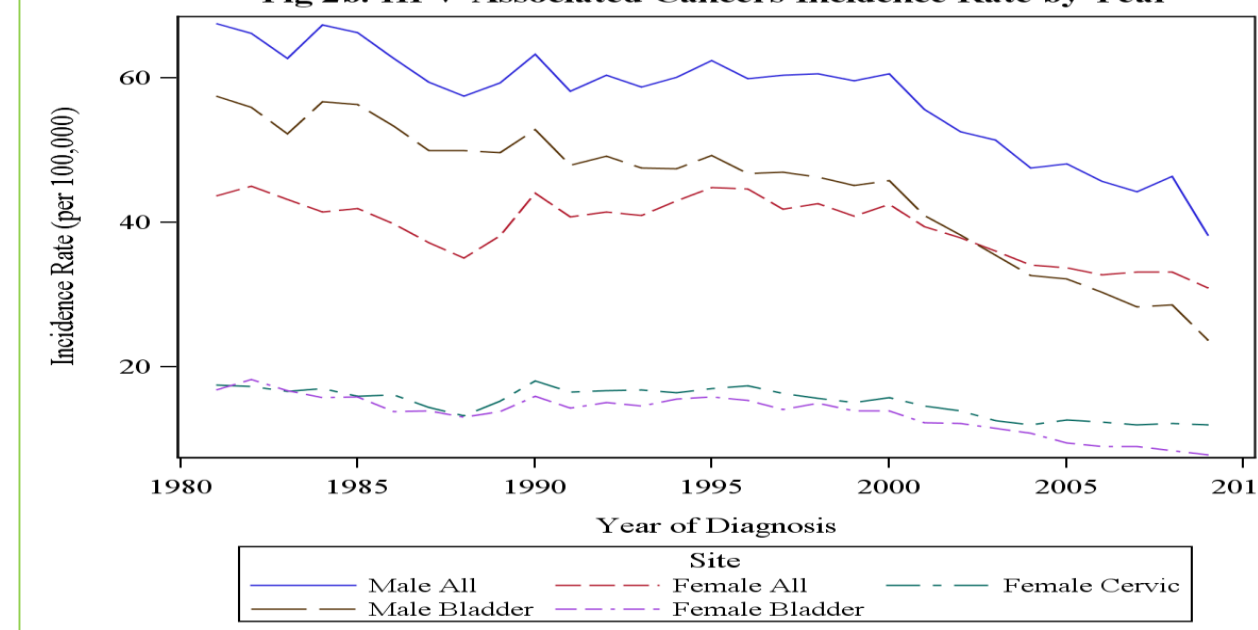


Fig 2b. HPV-Associated Cancers Incidence Rate by Year



RESULTS

-From 1981-2009, 57.1%(86,613) men and 42.9%(65,060) women residing in Florida were diagnosed with HPV-associated cancers.

-HPV-associated cancers in Floridian men included bladder (76.6%), tongue (11.3%), tonsil (6.8%), anal (3.2%) and penile (2.1%) cancers (table 1).

-HPV-associated cancers in Floridian women included cancers of the cervix (37.9%), bladder (33.7%), vulva (8.7%), anus (7.1%), tongue (6.8%), vagina (2.7%) and tonsil (3.2%).

-White, non-Hispanic and higher socio-economic status each had more bladder cancer but far less cervical cancer than Black, Hispanic, lower socioeconomic status patients.

-There were no significant changes in incidence for cancers of the penis for men or tongue, tonsil and vagina for women from 1981 to 2009 (Figure 2a).

-In contrast, the incidence of female vulvar and anal cancers and male tongue, tonsil, anal cancers increased significantly from 1981 to 2009.

-In 2000, bladder cancer incidence began to decline significantly for men and women (Figure 2b).

DISCUSSION

-It is possible that HPV screening was associated with the increase in HPV-associated cancer incidence starting 1990, while HPV prevention efforts may be associated with the overall decline in incidence beginning in 2000.

-Elucidating patterns can lead to implementation of gender-targeted medical and public health interventions.