

# Trends in the incidence of HPV associated oropharyngeal squamous cell carcinoma in the United States 2010-2016

Su Il Kim<sup>1</sup>, Jung Woo Lee<sup>1</sup>, Young Gyu Eun<sup>1</sup>, and Young Chan Lee<sup>1</sup>

<sup>1</sup>Kyung Hee University

December 26, 2022

## Abstract

**Objectives:** We aimed to evaluate the trend of HPV infection status in oropharyngeal squamous cell carcinoma (OPSCC) according to various epidemiologic factors in the United States. **Design:** Retrospective cohort study. **Setting:** Surveillance, Epidemiology, and End Results (SEER) 2010-2016 database. **Participants:** A total of 13081 patients with OPSCC were enrolled. Patients were diagnosed with OPSCC primarily in the base of tongue, posterior pharyngeal wall, soft palate, and tonsil between 2010 and 2016 and were tested for HPV infection status. **Main outcome measures:** We analyzed how the number of OPSCC patients changed according to various demographic factors from 2010 to 2016. Additionally, we forecasted and confirmed the number of HPV (+) and (-) patients with OPSCC using the autoregressive integrated moving average (ARIMA) model. **Results:** The number of HPV (+) patients with OPSCC has increased over the past 7 years, but the degree of increase varied greatly according to the age, sex, and subsites. The number of HPV (-) patients increased until 2015 in all age groups for each site but did not change or decrease since then. Appropriate ARIMA models were applied to forecast HPV (+) and (-) patients, and the predicted data matched the actual data well. **Conclusions:** This large population-based study suggests that HPV (+) patients with OPSCC has increased and will continue to increase. However, the trends in HPV infection status in patients differed greatly according to various demographic factors. These results present a direction for establishing appropriate preventive measures to deal with HPV-related OPSCC in more detail.

## Hosted file

HPV - text.legends1 2499.docx available at <https://authorea.com/users/378499/articles/615788-trends-in-the-incidence-of-hpv-associated-oropharyngeal-squamous-cell-carcinoma-in-the-united-states-2010-2016>

## Hosted file

HPV - Table.docx available at <https://authorea.com/users/378499/articles/615788-trends-in-the-incidence-of-hpv-associated-oropharyngeal-squamous-cell-carcinoma-in-the-united-states-2010-2016>

figures/FIG1/FIG1-eps-converted-to.pdf

figures/FIG2/FIG2-eps-converted-to.pdf

figures/FIG3/FIG3-eps-converted-to.pdf

figures/FIG4/FIG4-eps-converted-to.pdf