In collaboration with CDC’s Division of Cancer Prevention and Control, this quarter’s report highlights your jurisdiction’s HPV–associated cancer burden. In addition, please see your jurisdiction’s human papillomavirus (HPV) vaccine distribution trend for 2017 below.

Every year in the United States, it is estimated that >30,000 people are diagnosed with a cancer caused by HPV infection. A large proportion of these cancers could be prevented with vaccination. See the second page of this report for data on HPV–associated cancers in your state or city.

Examining the percentage of HPV vaccine doses distributed while accounting for your jurisdiction’s estimated 11-year-old population provides a yardstick for measuring progress toward vaccinating this cohort. Nationally, HPV vaccine has been distributed as follows:
- 20% in the first quarter
- 20% in the second quarter
- 35% in the third quarter
- 25% in the fourth quarter

We used these percentages to measure progress toward vaccinating 11-year-olds for each quarter of 2017. Check the graph below to see how your jurisdiction did last year.

<table>
<thead>
<tr>
<th>Year Start</th>
<th>Q1 (20%)‡</th>
<th>Q2 (40%)‡</th>
<th>Q3 (75%)‡</th>
<th>Q4 (100%)‡</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017 Estimated</td>
<td>0</td>
<td>202,382</td>
<td>404,763</td>
<td>758,931</td>
</tr>
<tr>
<td>2017 Actual</td>
<td>0</td>
<td>328,017</td>
<td>667,865</td>
<td>1,093,627</td>
</tr>
</tbody>
</table>

Based on an estimated 505,954 * 11-year-olds in California, your jurisdiction ordered 137% of the estimated total annual doses of HPV vaccine needed to vaccinate all 11-year-olds. If all the ordered doses were used for 11-year-olds, California ordered a sufficient amount of vaccine for this age group in 2017 including extra doses for catch-up vaccination of older adolescents and young adults.

*These data represent an estimate of all HPV vaccine doses distributed in California. The 9-valent HPV vaccine is currently the only HPV vaccine available in the United States.

†The 11-year-old population estimate was obtained from the U.S. Census: https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=PEP_2015_PEPSYASEX&prodType=table.

‡Estimated percentages of vaccine orders are based on the 11-year-old population estimate and national HPV vaccine ordering patterns over the last several years.

Have questions? Contact us at hpvquarterlyreport@cdc.gov.
Estimated number of HPV-associated cancers by cancer type and HPV type, California, 2010–2014

![Bar chart showing the number of HPV-associated cancers by type and HPV type in California between 2010 and 2014.](chart)

- **Cervix**
  - Cancers caused by 9-valent HPV types 16/18/31/33/45/52/58: 1,105
  - *Cancers caused by other HPV types*: 133
  - †HPV-negative cancers*: 128

- **Oropharynx (Male/Female)**
  - Cancers caused by 9-valent HPV types 16/18/31/33/45/52/58: 1,082
  - *Cancers caused by other HPV types*: 476
  - †HPV-negative cancers*: 70

- **Total, All Cancer Types**
  - Cancers caused by 9-valent HPV types 16/18/31/33/45/52/58: 3,115
  - *Cancers caused by other HPV types*: 256
  - †HPV-negative cancers*: 829

**Source:** Data are from population-based cancer registries participating in the CDC National Program of Cancer Registries and/or the NCI Surveillance, Epidemiology, and End Results Program, meeting criteria for high data quality for all years 2010 to 2014. (All registries except Nevada, covering about 90% of the U.S. population).

†HPV-negative cancers* are those that occur at anatomic sites in which HPV-associated cancers are often found, but HPV DNA was not detected.

‡“Total, all cancer types” includes HPV-associated cervical carcinomas as well as squamous cell carcinomas at other anatomic sites, including the vagina, vulva, penis, anus (including rectal squamous cell carcinomas), and oropharynx. However, due to small numbers, data points for the following sites are not displayed in the graph above: vagina, vulva, penis, anus, and rectum.

- In California, an estimated total of 4,200 HPV-associated cancers were reported each year during 2010–2014. Of these, around 80% (3,371/4,200) were HPV-attributable and around 92% (3,115/3,371) could have been prevented with the 9-valent HPV vaccine, including 1,082 oropharyngeal and 1,105 cervical cancers. Of note, the majority (84%) of these oropharyngeal cancers occurred among males.

- Nationally, an estimated total of 41,000 HPV-associated cancers occurred in the United States each year during 2010–2014. Of these, around 79% (32,500/41,000) were attributable to HPV and of these, around 92% (30,000/32,500) could have been prevented by the 9-valent HPV vaccine, including 11,500 oropharyngeal and 9,400 cervical cancers (*data not shown in chart above*).

**HPV-associated cancers** are defined as invasive cancers at anatomic sites with cell types in which HPV DNA is frequently found. These anatomic sites include the cervix, vagina, vulva, penis, anus, rectum, and oropharynx (back of the throat, including the base of the tongue and tonsils). These cell types include carcinomas of the cervix and squamous cell carcinomas of the vagina, vulva, penis, anus (including rectal squamous cell carcinomas), and oropharynx.

**HPV-attributable cancers** refers to the proportion of HPV-associated cancers probably caused by HPV. These cancers are estimated by multiplying the number of HPV-associated cancers by the percentage attributable to HPV. Based on a CDC study that used population-based data and determined HPV types in cancer tissue, about 90% of cervical cancers and 70% of oropharyngeal cancers are attributable to HPV.

**References**


**Resources**
