

CERVICAL CANCER: VACCINATION, SCREENING, AND COVID-19

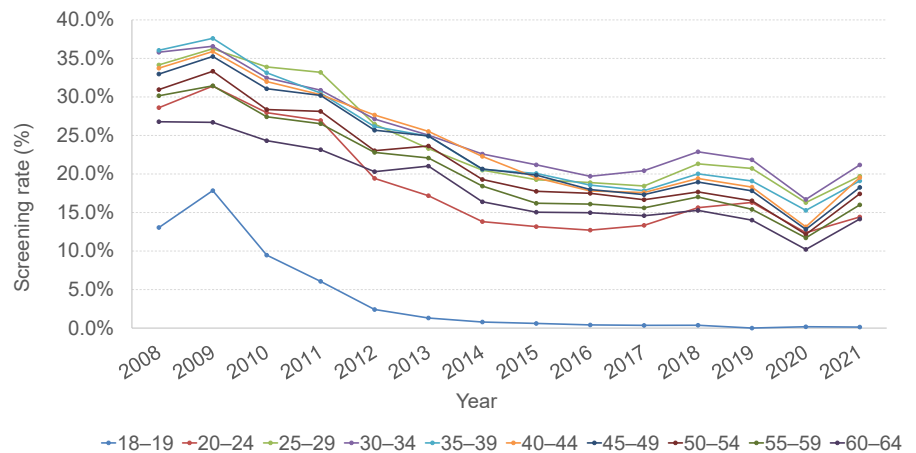
The COVID-19 pandemic has greatly disrupted preventive care and treatment, including human papillomavirus (HPV) immunization, cervical cancer screening, and cervical pre-cancer and cancer treatments. On March 19, 2020, Governor Kate Brown issued [Executive Order 20-10](#) in response to the rise in COVID-19 cases. To preserve personal protective equipment (PPE) and hospital beds, and to protect health care workers, this order postponed elective health care procedures like routine pelvic exams. [Executive Order 20-22](#) allowed non-urgent healthcare procedures to resume with appropriate PPE on April 27, 2020.

Despite the lifting of the original order, many patients continued to delay or avoid routine medical care due to COVID-19 concerns. Staff shortages further delayed care. This issue of the *CD Summary* reviews background on HPV and its disease burden, presents data on cervical cancer screening rates and the impact of COVID-19, provides screening guidelines, and offers recommendations to increase HPV vaccination and completion.

COVID-19 IMPACT ON CERVICAL CANCER PREVENTION

As part of the effort to evaluate the impact of HPV vaccination, the Oregon Public Health Division (OPHD) monitors cervical cancers and pre-cancers—cervical intraepithelial neoplasias of grade 2 or higher (CIN2+). In 2020, cervical cancer screening plummeted when the pandemic hit (Figure). Missed screenings lead to missed diagnoses of CIN2+ and cervical cancers. The consequence is that cancers are then typically diagnosed later, at more advanced stages, necessitating more complicated treatment and causing more adverse health outcomes.

Figure. HPV-IMPACT: Cervical cancer screening rates, for women 18–64 years of age residing in the 28 zip code catchment area*, 2008–2021



*28-zip code catchment area is in metropolitan Portland, OR, including portions of Multnomah County and Washington County

HPV AND CANCER

An estimated 13,000 new cases of cervical cancer are diagnosed, and 4,000 women die from cervical cancer each year in the United States.¹ Almost all cases of cervical cancer—91% in one study—evidence infection with HPV.² HPV infection can also cause oropharyngeal (72%), anal (91%), vulvar (69%), vaginal (69%), and penile (63%) cancers.²

Other risk factors for cervical cancer include sexual history (having multiple sexual partners, initiating sex early [especially before age 18], having a sexual partner with HPV infection or who has many sexual partners), exposure to diethylstilbestrol (DES, associated with clear-cell adenocarcinoma of the cervix or vagina), family history of cervical cancer, immunosuppression, low socioeconomic status (related to lack of access to screening), long-term use of oral contraceptives, and smoking. Women who smoke are about twice as likely as non-smokers to get cervi-

cal cancer. More black and Hispanic women are diagnosed HPV-associated cervical cancer than women of other races or ethnicities, possibly because of decreased access to Pap testing or follow-up treatment.

HPV VACCINE

HPV infection is common: in the pre-vaccine era, more than 80% of people were infected by one or more of its ~100 types by age 45. Vaccination can prevent infection by the more common oncogenic types.³ Of the three vaccines licensed in the United States, only the 9-valent Gardasil-9 (9vHPV) is widely available. Two of the nine vaccine types—HPV16 and HPV18—cause about 75% of cervical cancers in the U.S.⁴ CDC estimates that 76% of high-grade cervical lesions (CIN2+) are attributable to 9vHPV types.

CDC's Advisory Committee on Immunization Practices (ACIP) currently recommends routine vaccination of adolescents at 11–12 years of age—i.e., before sexual debut; vaccination can be

*types 6, 11, 16, 18, 31, 33, 45, 51, 58

Table. Overview of cervical cancer screening recommendations for women ages 18

Guidelines	Pap alone*	Primary hrHPV test**	Co-test (Both cytology and hrHPV test)
USPSTF†, ACOG§	Every 3 years (ages 21–65)	Every 5 years (ages 30–65)	
ACS‡	Every 3 years (ages 25–65)	Every 5 years (ages 25–65)	

*The Papanicolaou (Pap) test is a procedure used to collect cells from the cervix. Collected cervical cells are examined for abnormalities.

**Primary high-risk HPV (hrHPV) test screens for HPV high-risk types that are most likely to cause cervical cancer by looking at cervical cells.

†USPSTF=United States Preventive Services Taskforce

§American College of Obstetricians and Gynecologists

‡ACS=American Cancer Society. ACS prefers HPV test over a Pap test or HPV+Pap co-testing

initiated as early as age 9. Anti-HPV antibody responses to vaccination vary inversely with age: for the eligible ages, the earlier the better. HPV vaccination commenced before 15 years of age can be completed with two doses; three doses are required when starting at age 15 or older.

CDC also recommends vaccination through age 26 for anyone not adequately vaccinated when younger. How about older adults? Most HPV infections are acquired in youth, and the risk of new HPV acquisition declines with age. In June 2019, ACIP recommended “shared clinical decision-making” regarding potential HPV vaccination of adults ages 27–45. The vaccine is not licensed for adults >45 years of age.

CERVICAL CANCER SCREENING UPDATE

The American Cancer Society (ACS) updated its cervical cancer screening guideline in 2020, with two major changes: 1) start at age 25, rather than at age 21; and 2) women 25–65 years of age should have a primary HPV test every 5 years. If primary HPV testing is not available, screening may be done with either cervical cytology plus high-risk HPV testing (“co-testing”) every five years or a Pap test alone every three years. Screening ends at age 65 for patients who during the preceding 10 years had regular screening with normal results and no CIN2+ found in the preceding 25 years. The U.S. Preventive Services Task Force (USPSTF) and the American College of Obstetricians and Gynecologists (ACOG), however, still recommend that women 21–29 years of age get cervical cytology

alone every three years. Those aged 30–65 years should be screened every three years with cervical cytology alone, every five years with high-risk HPV (hrHPV) or every five years co-testing. Screening ends at age >65 years for patients screened regularly during the previous 10 years with no CIN2+ found in the most recent two co-testing or three cytology screening tests. Clinicians should consider screening history and risk factors when making decisions about screening other women >65 years of age. The American Society for Colposcopy and Cervical Pathology (ASCCP) endorses USPSTF and ACOG recommendations and supports ACS recommendations (Table).

CONCLUSIONS

Cervical cancer is largely preventable through vaccination, and it is one of the most treatable and preventable cancers—if detected early through regular screening.⁵ Since the introduction of screening programs and HPV vaccines, cervical cancer incidence and mortality have been declining steadily. However, screening fell drastically during the COVID-19 pandemic: cervical cancer screening tests received through CDC’s National Breast and Cervical Cancer Early Detection Program were down by 84% during April 2020.⁶ We urge physicians to re-engage their patients in cancer prevention as recommended below.

RECOMMENDATIONS

Please consider these clinic-level strategies to increase HPV vaccination rates and completion:

- Increase outreach and re-emphasize prevention and screening

- Triage patients at higher risk—i.e. those overdue for vaccination or screening or a history of inadequate screening, those with a history of abnormal Paps, HPV+ tests or cervical precancers, immunocompromised patients, patients who smoke and patients with a high number of new or recent sexual partners.
- Vaccinate pre-teens against HPV as early as age of 9; review shared decision-making recommendations and discuss HPV vaccination with patients (men and women) 27–45 years of age.
- Leverage new technology to reach patients, e.g., developing easy-to-use mobile applications to encourage cancer screening, and sending appointment reminders.
- Prioritize populations that historically have lacked access to screening or HPV vaccine.

FOR MORE INFORMATION

ACDP: [Diseases A-Z: Human Papillomavirus](#)

CDC tools to educate clinicians and office staff on the latest information and guidance on HPV vaccination, and how to communicate effectively with parents: www.cdc.gov/hpv/hcp/educational-materials.html.

Oregon Immunization Program HPV Resources: www.oregon.gov/oha/ph/preventionwellness/vaccinesimmunization/gettingimmunized/pages/hpv.aspx

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