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OREGON PUBLIC HEALTH DIVISION • OREGON HEALTH AUTHORITY

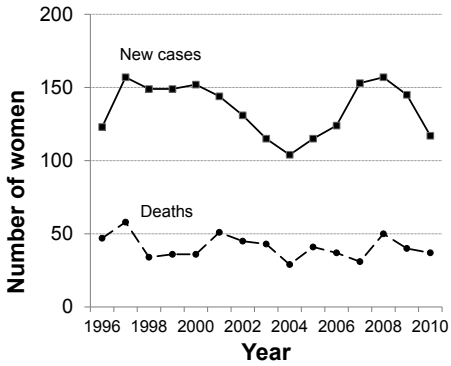
CERVICAL DYSPLASIA IN OREGON: SCREENING AND HPV VACCINE

New recommendations suggest women can wait until they are 21 years old to start getting regular Pap smears, and Pap smears can be spaced out over 3 or even 5 years. Get up to speed quickly on the new recommendations. Learn about evidence for declining incidence of cervical dysplasia among young women in Oregon. Renew your vigor for promoting HPV (human papillomavirus) vaccination!

PROLOGUE

HPV can cause cervical cancer after an incubation of many years. Cervical cancer can be prevented by detection by Pap smear and treatment of HPV-related high-grade cervical dysplasia* (a.k.a. "precancer"). Declines having begun much earlier, U.S. cervical cancer rates continued to decrease from 14.8 new cases per 100,000 women in 1975 to 6.7 cases per 100,000 women in 2010.† But neither cervical cancer incidence nor mortality have changed much in Oregon since the 1990's (Figure 1).

Figure 1. Cervical cancer incidence and mortality, Oregon, 1996–2010



Source: Oregon State Cancer Registry

Each year in Oregon, approximately $80 million are spent preventing and treating HPV-related disease, including cervical cancer — $66 million for routine cervical cancer screening and $4 million for treatment.[1] With luck, the combination of HPV vaccination and optimizing screening and treatment will eliminate cervical cancer in Oregon.

*includes cervical intraepitheal grades II and III and adenocarcinomas *in situ*

† *http://seer.cancer.gov/statfacts/html/cervix.html; www.cancer.org/cancer/cervicalcancer/detailedguide/cervical-cancer-key-statistics*

FEWER PAPS RECOMMENDED

Before 2012, cervical cancer screening guidelines of the American College of Obstetricians and Gynecologist (ACOG), American Cancer Society (ACS), and the U.S. Preventive Services Task Force (USPSTF) differed on screening age of onset and frequency. Thankfully, since 2012, all three recommendations have converged (Table 1).[2]

Table 1. Unified cervical cancer screening guidelines, 2012

Start	Age 21 yrs
Interval	
Age 21-29 yrs	Cytology alone every 3 y
Age ≥30 yrs	Co-testing[a] every 5 y or cytology alone every 3 y
Stop	Age 65 yrs. with adequate screen history[b]
If vaccinated	Continue screening regardless of vaccination status.

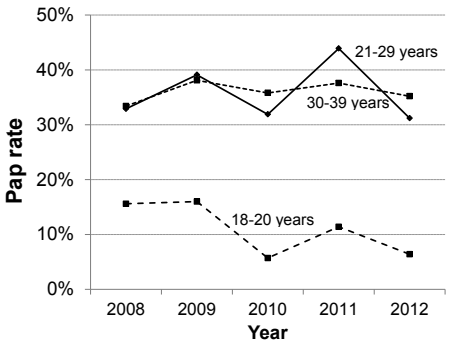
[a]Simultaneous testing with liquid-based Pap smear and molecular testing for oncogenic HPV subtypes. [b]Three consecutive normal negative Pap smears or no abnormal Pap smears in the last 10 years

PAPS DECLINING IN OREGON

New screening recommendations already appear to be reducing unecessary Pap smears in Oregon. The Public Health Division HPV-IMPACT Project recently analyzed administrative claims data‡ to estimate the percentage of women who had at least one Pap smear by calendar year. These data show decreases in Pap smears among women aged 18–21 years. Trends in women aged >20 years are less obvious (Figure 2).

‡ adjusted for the proportion of the population insured

Figure 2. Cervical cancer screening rate by age group, Oregon 2008–2012



Source: HPV Impact Project

INCIDENCE OF 'PRECANCER'

To measure the impact of HPV vaccination in the population, the HPV-IMPACT Project has monitored occurrence of high grade cervical dysplasia among women aged ≥18 years in metropolitan Portland. Oregon law requires pathology laboratories to report to the Oregon Public Health Division cervical biopsies that display evidence of high-grade dysplasia.§

From 2008–2012, 2,261 cervical dysplasia cases were reported among adult women age 18–64 years. Overall, ≥80% of reported cases occurred in women aged <40 years; 49% occurred among women aged 21–29 years. Only 19% of cases occurred among the youngest (18–20 years) and oldest (40–64 years) age groups.

Reported cases of high-grade dysplasia among Portland Metropolitan women aged 18–20 years declined >60% from 2008–2012. Reported cases among women aged 21–29 years and 30–39 years didn't vary noticeably (Figure 3, *verso*). The decline in 18–20 year old women could be a sign of vaccine effectiveness, decreased Pap screening, or both. Nevertheless, fewer high grade dysplasia diagnoses in the youngest women reduces overall screening costs and unnecessary diagnosis and treatment of a condition that nearly always resolves spontaneously.

§ OAR 333-010-0000 through 0080

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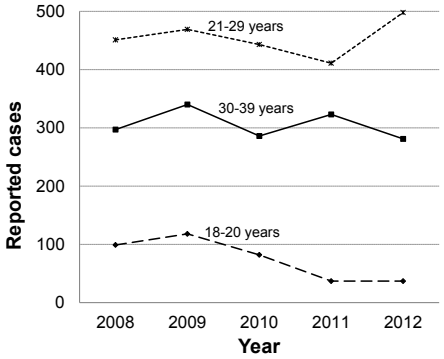
Figure 3. High-grade cervical dysplasia, Portland Metropolitan Area, 2008–2012[c]



[d]Includes cervical intraepithelial neoplasia, grades II and III and adenocarcinoma *in situ*
Source: HPV Impact Project

Commencing screening at a later age allows for more efficient detection of cases most likely to require treatment.

Other early evidence of HPV vaccine effectiveness has been found by analyzing the distribution of HPV subtypes among confirmed cases of cervical dysplasia. The Oregon HPV IMPACT project and 4 other states collect samples of archived cervical biopsy tissue from reported cases of cervical dysplasia and test these for known oncogenic HPV subtypes.[4] Compared to women vaccinated at least 2 years prior to the diagnosis of dysplasia (40%), unvaccinated women (56%) were 1.4 times more likely to have a lesion positive for HPV types 16 or 18.

NONOVALENT HPV VACCINE

Vaccines against HPV infection have been available in the U.S. since 2006. At present, two are available for use. Gardasil is a quadrivalent vaccine that protects against HPV types 6, 11, 16 and 18. Types 16 and 18 cause approximately 70% of cervical cancers while types 6 and 11 cause 90% of genital warts. Cervarix is a bivalent vaccine against types 16 and 18. Merck, the maker of Gardasil, is working on an investigational 9-valent HPV vaccine that prevents infection by additional oncogenic HPV types 31, 33, 45, 52, and 58 that cause many of the cancers not caused by types 16 and 18.[3] Unfortunately, uptake of existing quadri- and bivalent HPV vaccination has not been as robust as public health experts had hoped. The Oregon Immunization Program recently estimated that only 61% of Oregon girls and 26% of boys aged 13–17 years have received ≥1 dose of HPV vaccine. Many fewer girls (33%) and boys (6%) in this age group have received all three recommended doses of HPV vaccine.

ACTION ITEMS

- Educate patients/parents/caregivers about the complementary preventive health benefits of periodic Pap smears starting at age 21 for women and HPV vaccination starting at age 9–11 years for girls and boys. Educational brochures can be obtained from CDC¶ at no- or low-cost.
- Reduce missed opportunities—Check vaccination status during each adolescent visit, and make a strong recommendation. Schedule the visit for next dose before leaving the office. For adult women, schedule a Pap smear every three years.
- Send reminder notices —Providers can identify and generate reminder notices to adolescents in need of a vaccine via ALERT, Oregon's Immunization Registry. Electronic health record systems can be configured to send reminders for preventive health care such as HPV vaccination for adolescents and Pap smears for women. If tech solutions fail, send a postcard reminder.
- Maximize access to HPV vaccination by offering low-cost or no-cost vaccine via state provided Vaccines for Children program.
- Request a vaccination coverage evaluation by State Immunization program. Develop strategies to increase coverage.**

¶ *www.cdc.gov/vaccines/vpd-vac/hpv/default.htm*

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