



What is the Impact on Indiana Residents?

Table 6. Burden of Invasive Cervical Cancer — Indiana, 2008–2012

	Average number of cases per year (2008–2012)	Rate per 100,000 females† (2008–2012)	Number of cases (2012)	Rate per 100,000 females† (2012)
Indiana Incidence	250	7.4	240	7.1
Indiana Deaths	86	2.4	100	2.7

† Age-adjusted

Source: Indiana State Cancer Registry

CERVICAL CANCER

Bottom Line

Cervical cancer is almost 100 percent preventable through regular routine screening, avoidance of controllable risk factors, and vaccination against the human papillomavirus (HPV). In the US, an estimated 12,900 cases of invasive cervical cancer cases will be diagnosed in 2015 and 4,100 deaths will occur.¹ Large declines in incidence rates over most of the past several decades have begun to taper off, particularly among younger females; from 2006 to 2010, rates were stable in females younger than 50, and decreasing by only 3.1 percent in females ages 50 and older.¹ In Indiana, approximately 250 new cases of cervical cancer and 86 cervical cancer-related deaths occur annually among females [Table 6].

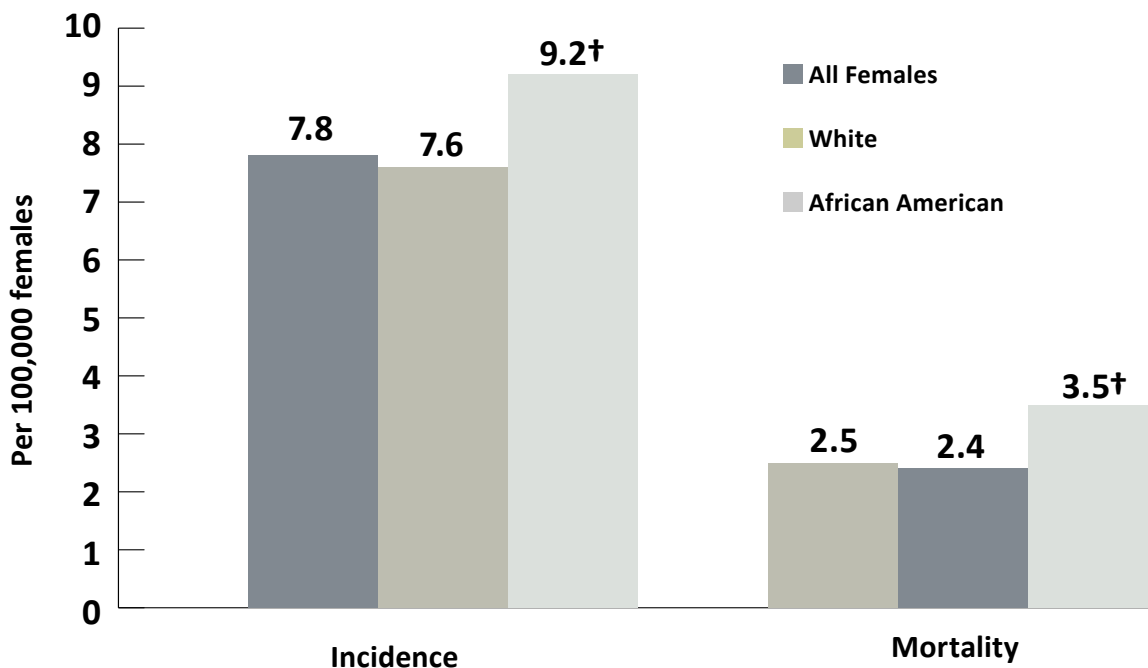
Who Gets Cervical Cancer?

- Infection with HPV is the single greatest risk factor for cervical cancer. Most cervical cancers are caused by persistent infection with certain types of HPV. The CDC estimates that at least 91 percent of cervical cancer cases are caused by HPV each year.² Other risk factors for cervical cancer include a compromised immune system and smoking.
- HPV is passed person-to-person through skin-to-skin sexual contact. Risk of transmission can be reduced by delaying first sexual activity, limiting the number of sexual partners, and using condoms.
- HPV vaccination is the best method of prevention. There are two vaccines (Cervarix and Gardasil) for females that are approved ages 9 through 26. HPV vaccination is routinely recommended for girls ages 11 and 12 and for

females ages 13 through 26 who did not get any or all of the doses when they were younger. One vaccine (Gardasil) is approved for males ages 9 through 26. HPV vaccination is routinely recommended for males ages 11 and 12 and for males ages 13 through 21 who did not get any or all of the doses when they were younger. Vaccination is routinely recommended for immunocompromised males and for males who have sex with males who are ages 22-26.³ A new vaccine, Gardasil 9, has recently been approved by the Food and Drug Administration, which would protect against nine strains of HPV and can prevent almost 90 percent of HPV-related cervical cancers. Due to the recent approval of Gardasil 9, it has not yet been included in vaccination recommendations.

- According to the National Immunization Survey (NIS), in 2013 only 54 percent of girls and 18 percent of boys ages 13 through 17 in Indiana received the first in the three dose series of HPV vaccine.⁴ Only 71 percent of girls in Indiana who began the series got all three shots.⁴
- Indiana females are most often diagnosed with cervical cancer during their middle adult years. During 2012, 85 percent of cervical cancer cases occurred among Indiana females less than 65 years-old, including 38 percent of cases occurring among females ages 25 to 44 and 46 percent among females ages 45 to 64.⁵
- During 2003-2012, African American females in Indiana, compared to white females, had a 21 percent higher cervical cancer incidence rate (9.2 versus 7.6 cases per 100,000 females, respectively) and a 46 percent higher mortality

Figure 12. Cervical Cancer Incidence and Mortality (Death) Rates by Race* — Indiana, 2003–2012

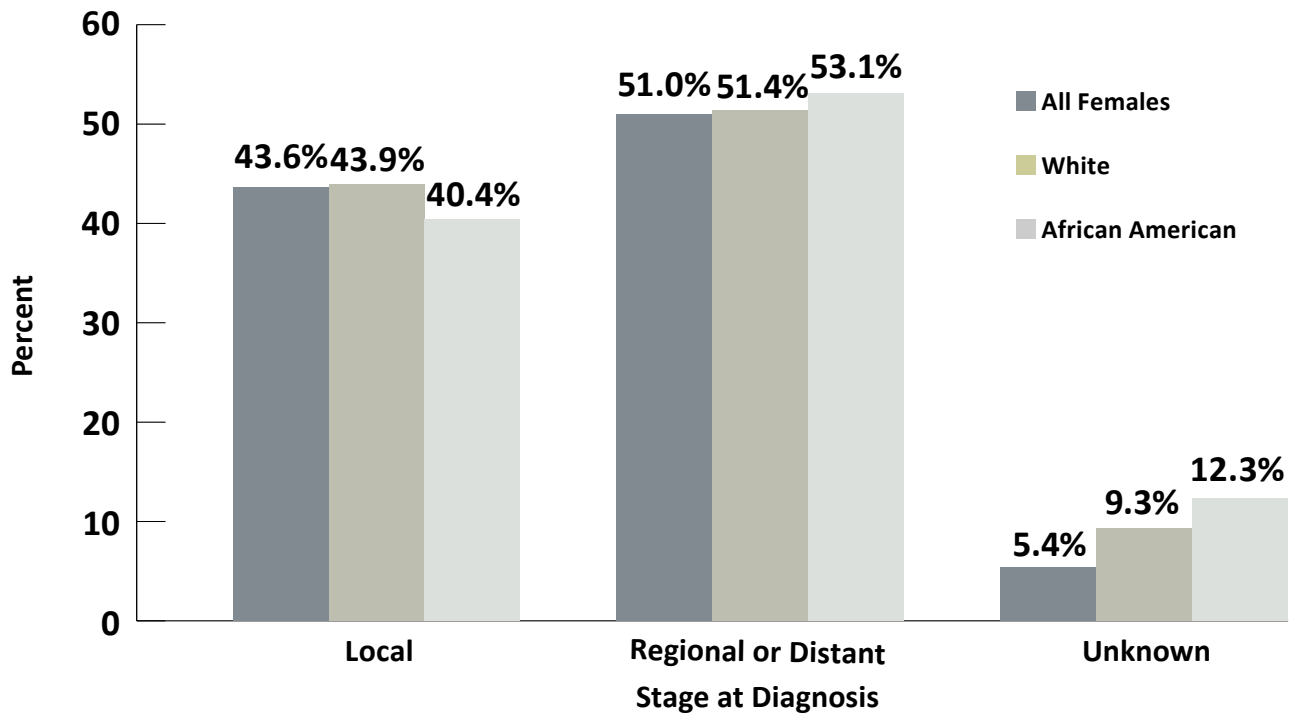


* Age-adjusted

† Rate among African American females is significantly higher ($P < .05$) than the rate among white females

Source: Indiana State Cancer Registry

Figure 13. Percent of Cervical Cancer Cases by Stage of Diagnosis and Race* — Indiana, 2003–2012



* Proportion of cases diagnosed in the regional or distant stage compared to the local stage is significantly higher ($P < .05$) among African American females than among white females

Source: Indiana State Cancer Registry

rate (3.5 versus 2.4 deaths per 100,000 females, respectively) [Figure 12]. While many factors are probably impacting this disparity, one apparent issue is that African American females tend to be diagnosed more often after the cervical cancer is no longer localized [Figure 13].⁵

Can Cervical Cancer Be Detected Early?

In the US, the cervical cancer mortality rate declined by almost 70 percent between 1955 and 1992, mainly because of the effectiveness of Pap smear screening.³ Pap screenings allow for early identification and treatment of abnormal cervical cells before they become cancerous. This is important because, typically, the pre-cancerous conditions do not cause pain or other symptoms and are only detected through Pap screenings.

The American Cancer Society, in collaboration with the American Society for Colposcopy and Cervical Pathology and the American Society for Clinical Pathology recommend all average-risk females ages 21 through 65 receive a routine Pap screening every three years. The preferred screening method for females ages 30 through 35 is a HPV and Pap test (called co-testing) every five years.¹

In 2012, 73.2 percent of Indiana females ages 18 and older reported having had a Pap screen during the past three years. This rate was similar for all racial and ethnic groups.⁵

What Factors Influence Cervical Cancer Survival?

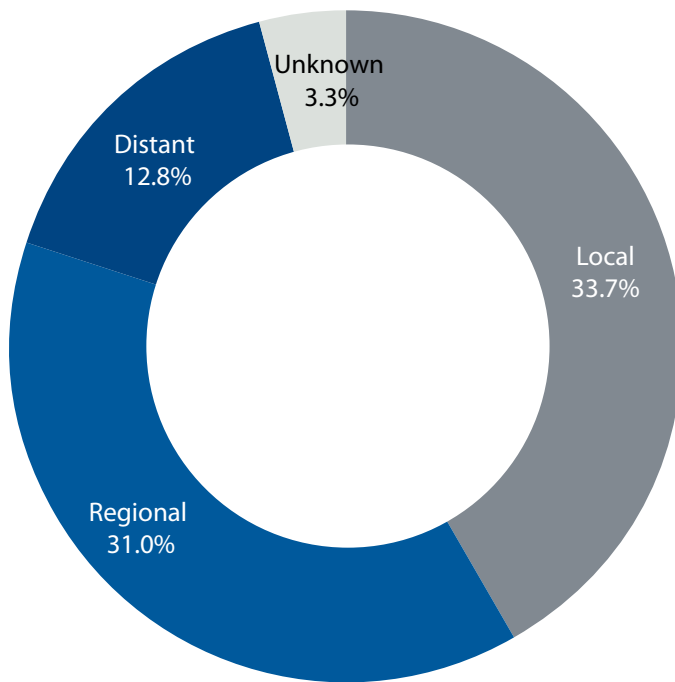
Figure 14 provides the percent of Indiana females diagnosed during each stage of cervical cancer during 2008-2012. The five-year survival rate for patients diagnosed with cervical cancer at the local stage is 91 percent.¹

In Indiana, from 2003-2007 to 2008-2012, the incidence of cervical cancer decreased, but the mortality rate remained constant [Figure 15]. There is no clear reason for this finding; however, it might be because while routine screening is catching most cases of cervical cancer prior to it becoming invasive, there still remains a consistent group of females who are not being screened and are diagnosed after the cancer has spread. These females are at increased risk for poor health outcomes.

REFERENCES

- 1 American Cancer Society. *Cancer Facts & Figures 2015*. Atlanta, GA. 2015. Accessed at <http://www.cancer.org/research/cancerfactsstatistics/index> on February 5, 2015.
- 2 Centers for Disease Control and Prevention. *How Many Cancer are Linked with HPV Each year?* Atlanta, GA. 2011. Accessed at <http://www.cdc.gov/cancer/hpv/statistics/cases.htm> on April 16, 2014.
- 3 Centers for Disease Control and Prevention. *Human Papillomavirus*. Atlanta, GA. 2011. Accessed at <http://www.cdc.gov/cancer/hpv>

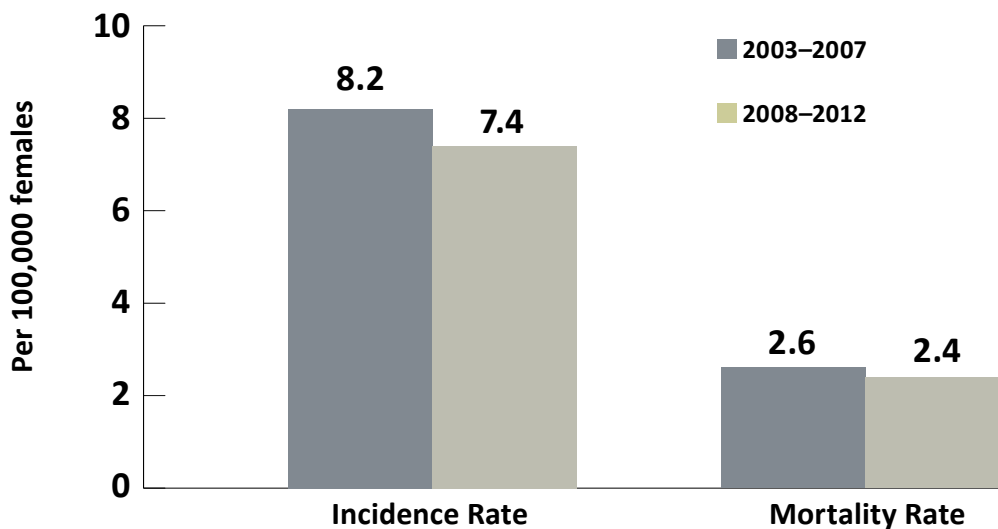
Figure 14. Percent of Cervical Cancer Cases Diagnosed During Each Stage* — Indiana, 2008–2012



During 2008–2012, of the 1,547 Indiana females who received a diagnosis of invasive cervical cancer, 521 (33.7 percent) were diagnosed in the local stage, 677 (43.8 percent) were diagnosed in the regional or distant stage, and 51 (3.3 percent) had unknown staging.

* Only includes invasive cases; in situ cases are not reportable
Source: Indiana State Cancer Registry

Figure 15. Changes in Cervical Cancer Incidence and Mortality (Death) Rates among Indiana Females between the Five-year Periods of 2003–2007 and 2008–2012*



* Age-adjusted
Source: Indiana State Cancer Registry

cdc.gov/hpv/vaccine.html on April 16, 2014.

⁴ Centers for Disease Control and Prevention, Immunization Managers. Accessed at <http://www.cdc.gov/vaccines/imz-managers/coverage/nis/teen/figures/2013-map.html> on January 12, 2015.

⁵ Indiana State Cancer Registry Statistics Report Generator. Accessed at <http://www.in.gov/isdh/24360.htm> on June 16, 2014.

Take Charge!

What You Can Do to Help Prevent Cervical Cancer

- Get vaccinated — Protecting yourself from HPV decreases your risk for cervical and other cancers.
- Practice safe sex.
- Be smoke-free — Visit www.in.gov/quitline for free smoking cessation assistance.
- Have routine Pap screenings.
- Ask for an HPV test with your Pap smear if you are age 30 or older.
- Watch for abnormal vaginal discharge and bleeding.