Cervical Cancer in Arkansas

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Purpose

The purpose of this presentation is to disseminate and communicate the latest available surveillance data for cervical cancer in the state of Arkansas.

Objectives:

- Describe screening recommendations and risk factors for cervical cancer
- Analyze state-specific rates and trends for cervical cancer
- Describe HPV-cervical cancer progression and HPV vaccination rates in Arkansas

2018 Cervical Cancer Fast Stats - Global

- 4th most frequently diagnosed and 4th leading cause of cancer death among females
- 570,000 new cases & 311,000 deaths among females
- About **85%** of global deaths occur in underdeveloped or developing countries
- Compared to wealthier countries, death rate is **18x higher** in low-income and middle-income countries

Why the health disparity between developing and developed countries?

Screenings

Source: Zhang et al. BMC Public Health (2021) 21:894 https://doi.org/10.1186/s12889-021-10907-5

United States Preventive Services Task Force (USPSTF) Screening Recommendations

Screenings for females 21 to 29 years of age	Perform screenings every 3 years with cytology (pap test) alone
Screenings for females 30 to 65 years of age	Perform screenings every 3 years with cytology (pap test) alone Or, Perform screenings every 5 years with hrHPV testing alone Or, Perform co-testing (pap test and hrHPV) every 5 years
Female less 21 years of age & females older than 65 years of age with adequate prior screening, and women who have had a hysterectomy	Do not screen for cervical cancer
Risk Assessment	All women aged 21 to 65 years are at risk for cervical cancer because of potential exposure to high-risk HPV types (hrHPV) through sexual intercourse and should be screened. Certain risk factors further increased risk for cervical cancer, including HIV infection, a compromised immune system, in utero exposure to diethylstilbestrol, and previous treatment of a high-grade precancerous lesion or cervical cancer. **Women with these risk factors should receive individualized follow-up.**

Cervical Cancer Risk Factors

Cannot be modified:

1. **"DES Daughters"** (40x more likely to develop a rare cancer called clear cell adenocarcinoma of the vagina and cervix)
2. **Family history of cervical cancer** (mother and/or sister)

Can be modified:

1. **Long-term use of oral contraceptives (OCs)** (ceasing use can decrease risk)
2. **Young age at 1st full-term pregnancy** (<20 years old)
3. **Smoking** (damages DNA of cervix cells)
4. **Chlamydia** (current or past infection)
5. **Multiple full-term pregnancies** (Females who have had 3 or more)
6. **Weakened immune system** (HIV, or drugs to treat autoimmune disease/organ transplant recipients)
7. **Economic status:** Limited access to healthcare to cervical cancer screenings and cervical pre-cancer treatments
8. **Poor diet and nutrition** (low intake of fruits and vegetables *may* increase risk for cervical cancer)

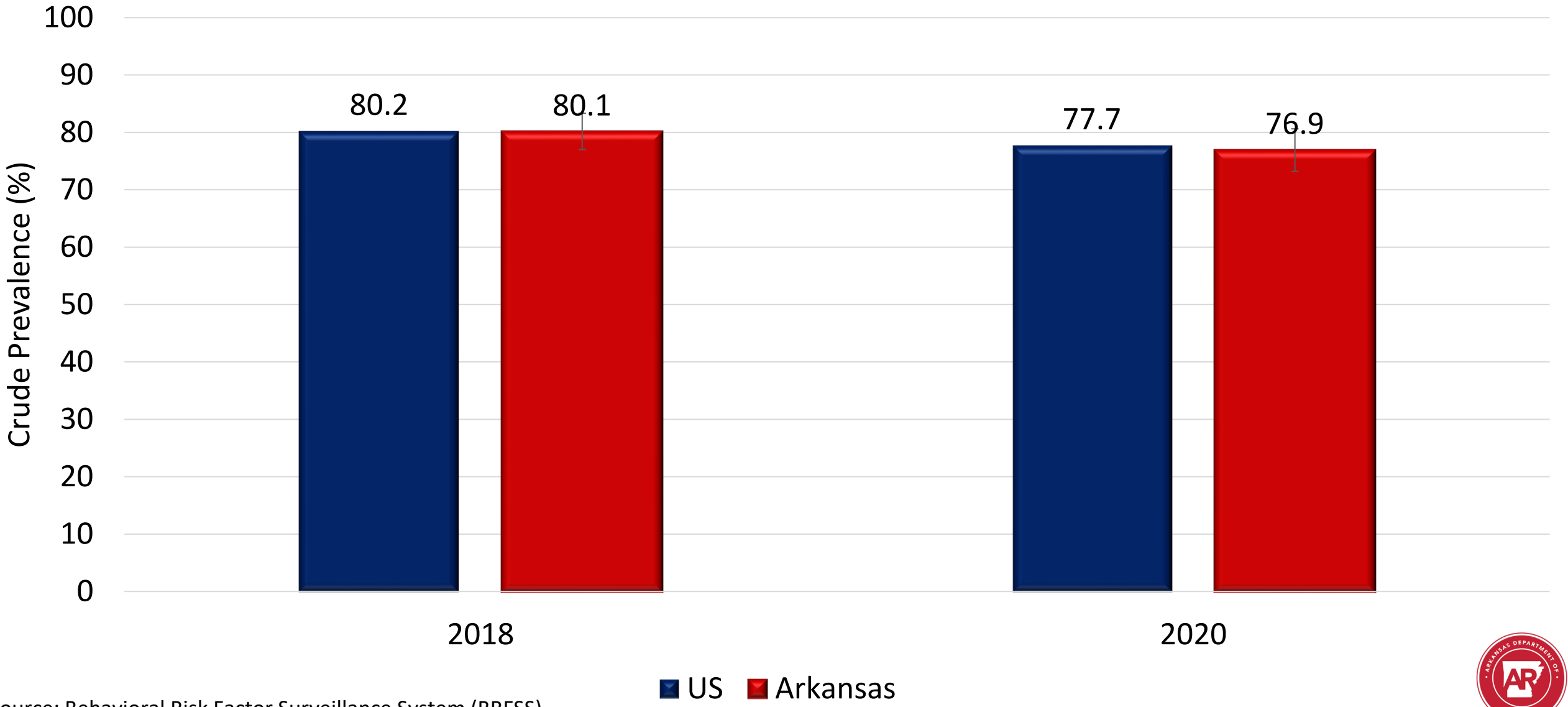
NOTE: Several risk factors can increase the chance of developing cervical cancer

Human papillomavirus (HPV)
Major cause of cervical cancer

Source: American Cancer Society (ACS)

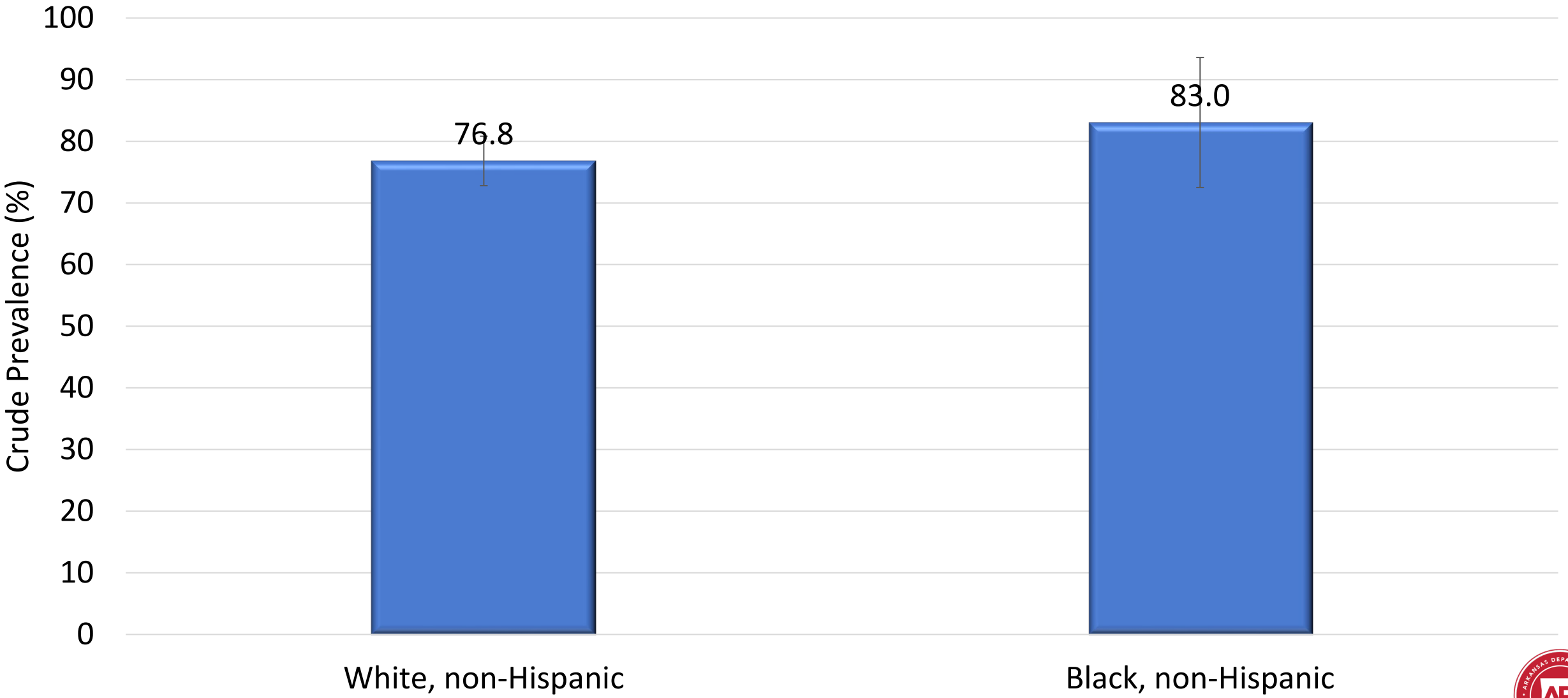
Early Detection & Screening

Percent of women (ages 21 - 65) who have had a pap test in the past three years
US and Arkansas 2018 - 2020



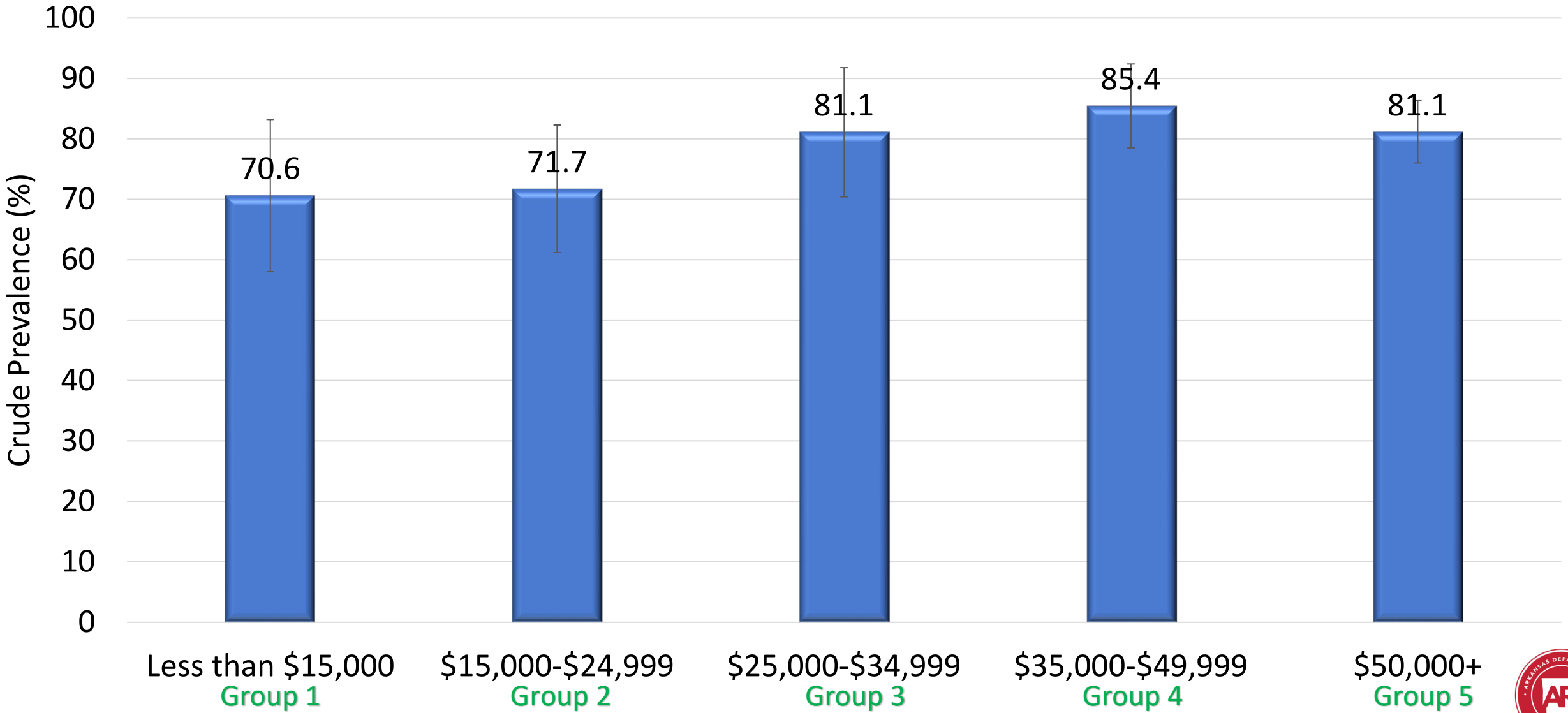
Source: Behavioral Risk Factor Surveillance System (BRFSS)

Percent of women (ages 21 - 65) who have had a pap test in the past three years by race/ethnicity
Arkansas 2020



Source: BRFSS

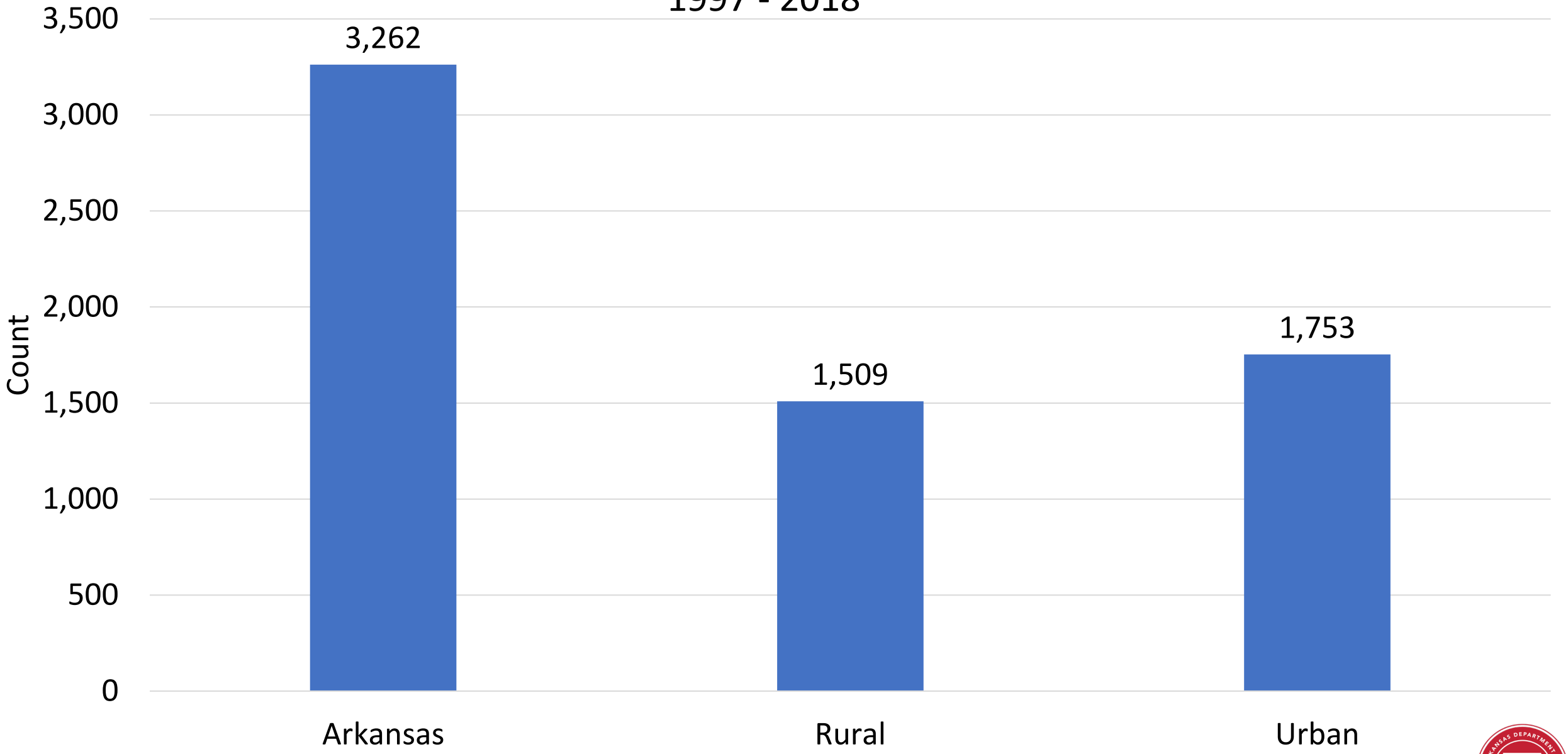
Percent of women (ages 21 - 65) who have had a pap test in the past three years by household income
Arkansas 2020



Source: BRFSS

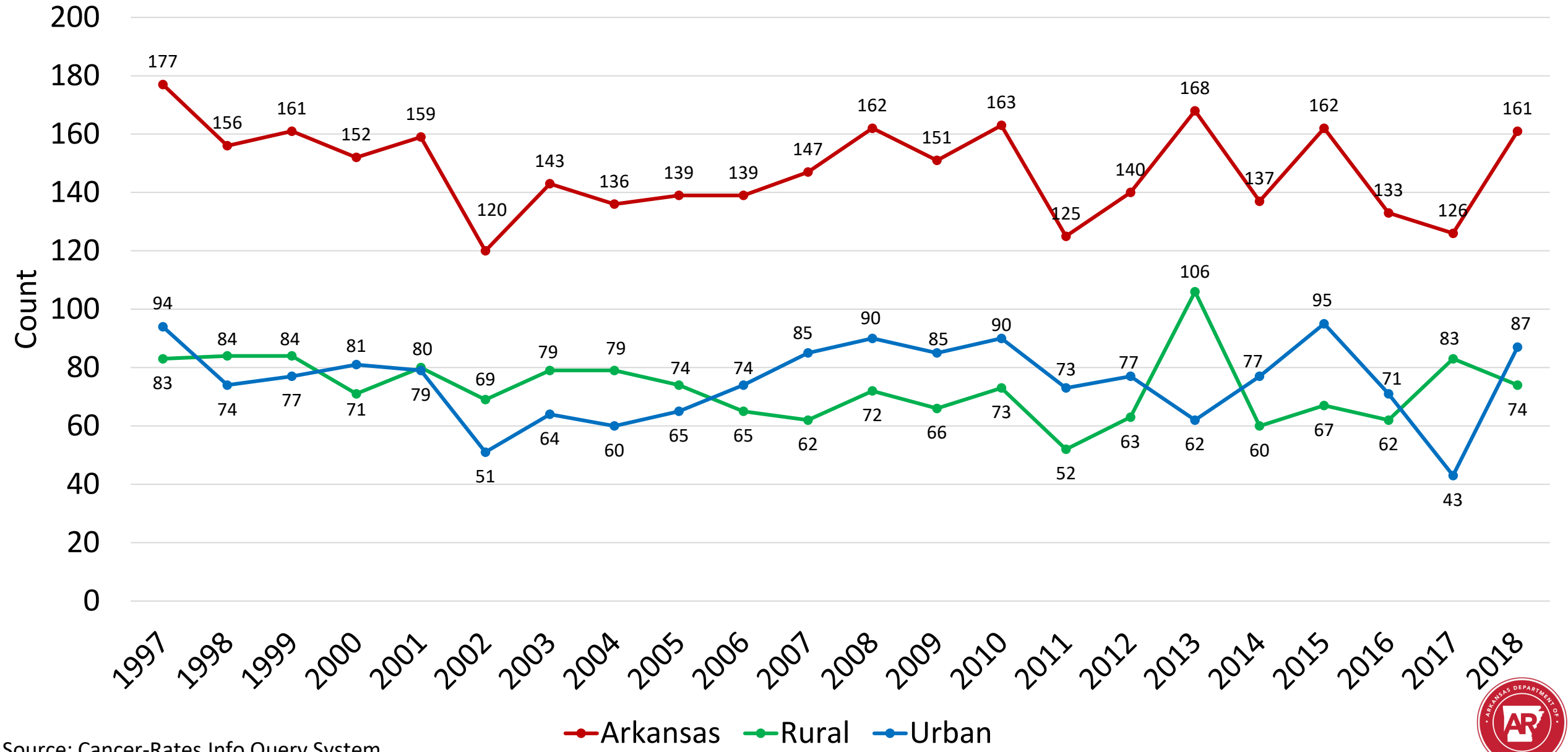
Incidence

Combined Number of Cervical Cancer Cases by Geographic Areas, Arkansas, 1997 - 2018



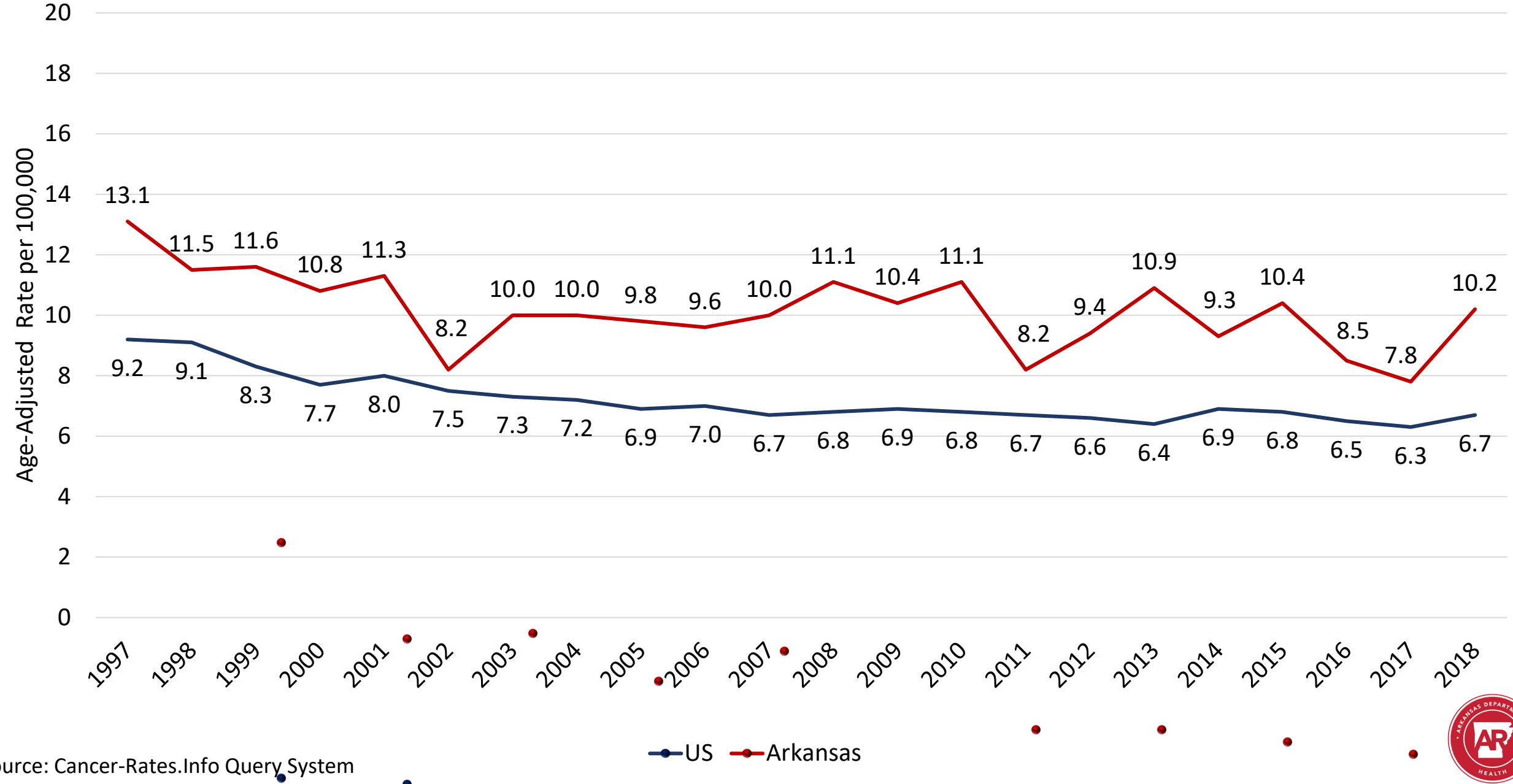
Source: Cancer-Rates.Info Query System

Trend of Number of Cervical Cancer Cases by Geographic Areas Compared to State, Arkansas, 1997 - 2018



Source: Cancer-Rates.Info Query System

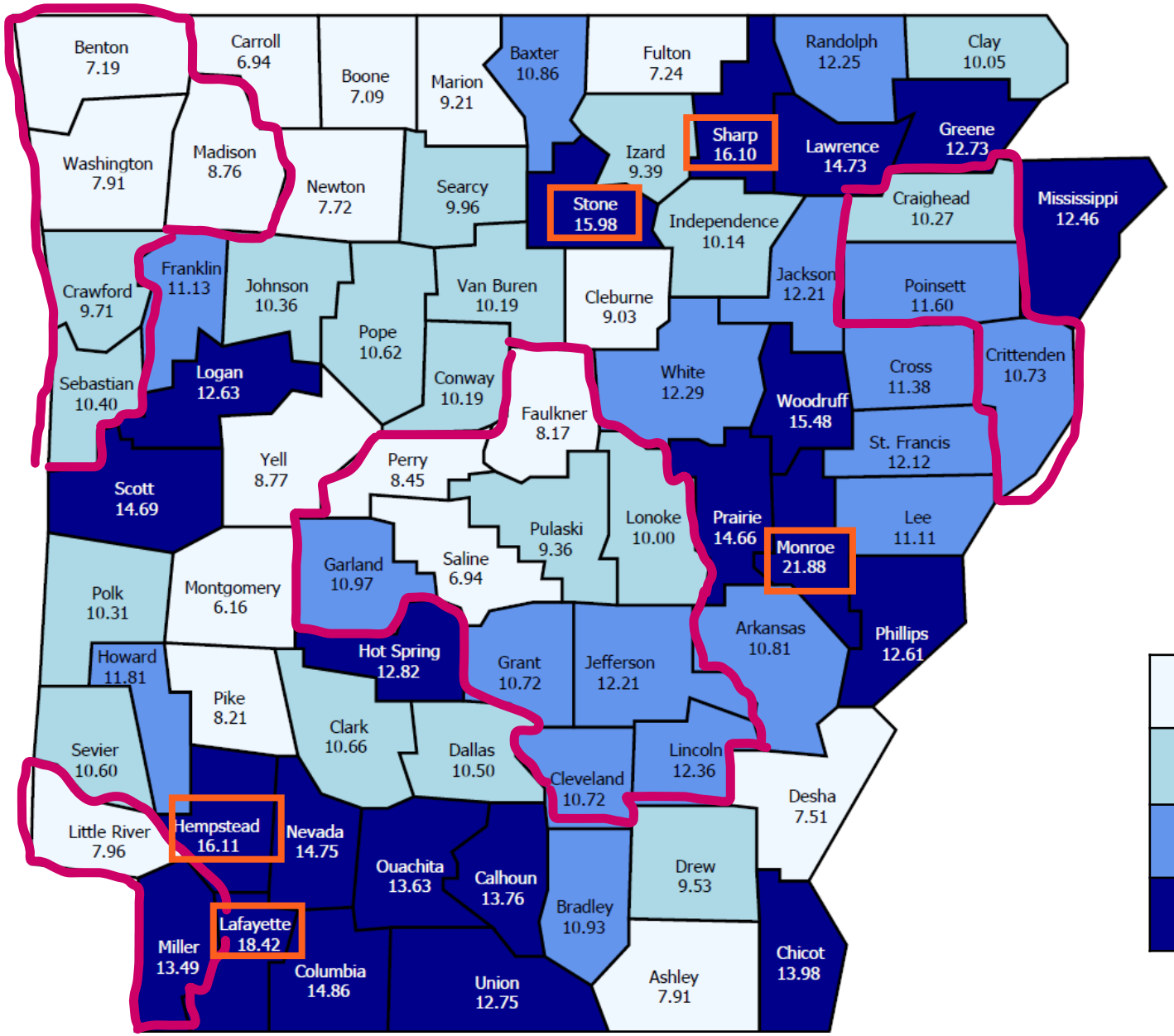
Age-Adjusted Incidence Trend for Cervical Cancer
US and Arkansas 1997 - 2018



Source: Cancer-Rates.Info Query System

Map of Age-Adjusted Incidence Rate of Cervical Cancer by County
Arkansas, 1997 - 2018

State Age-Adjusted Incidence Rate:
10.14 per 100,000

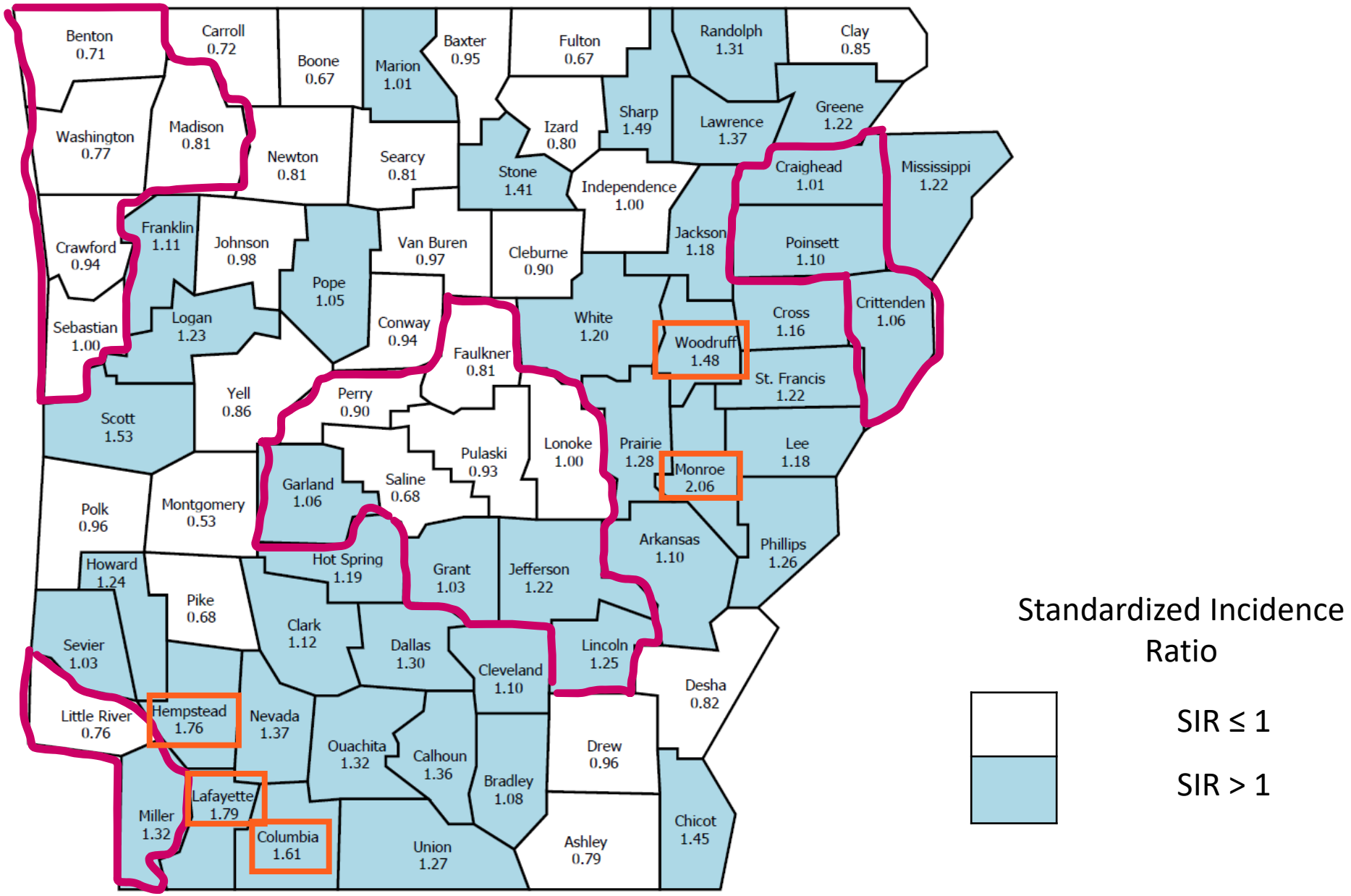


Age-Adjusted Incidence Rate per 100,000 population

- 6.16 – 9.35
- 9.36 – 10.71
- 10.72 – 12.45
- 12.46 – 21.88

Source: CancerCORE
Created on March 14, 2022

Map of Standardized Incidence Ratio of Cervical Cancer by County
Arkansas, 1997 - 2018



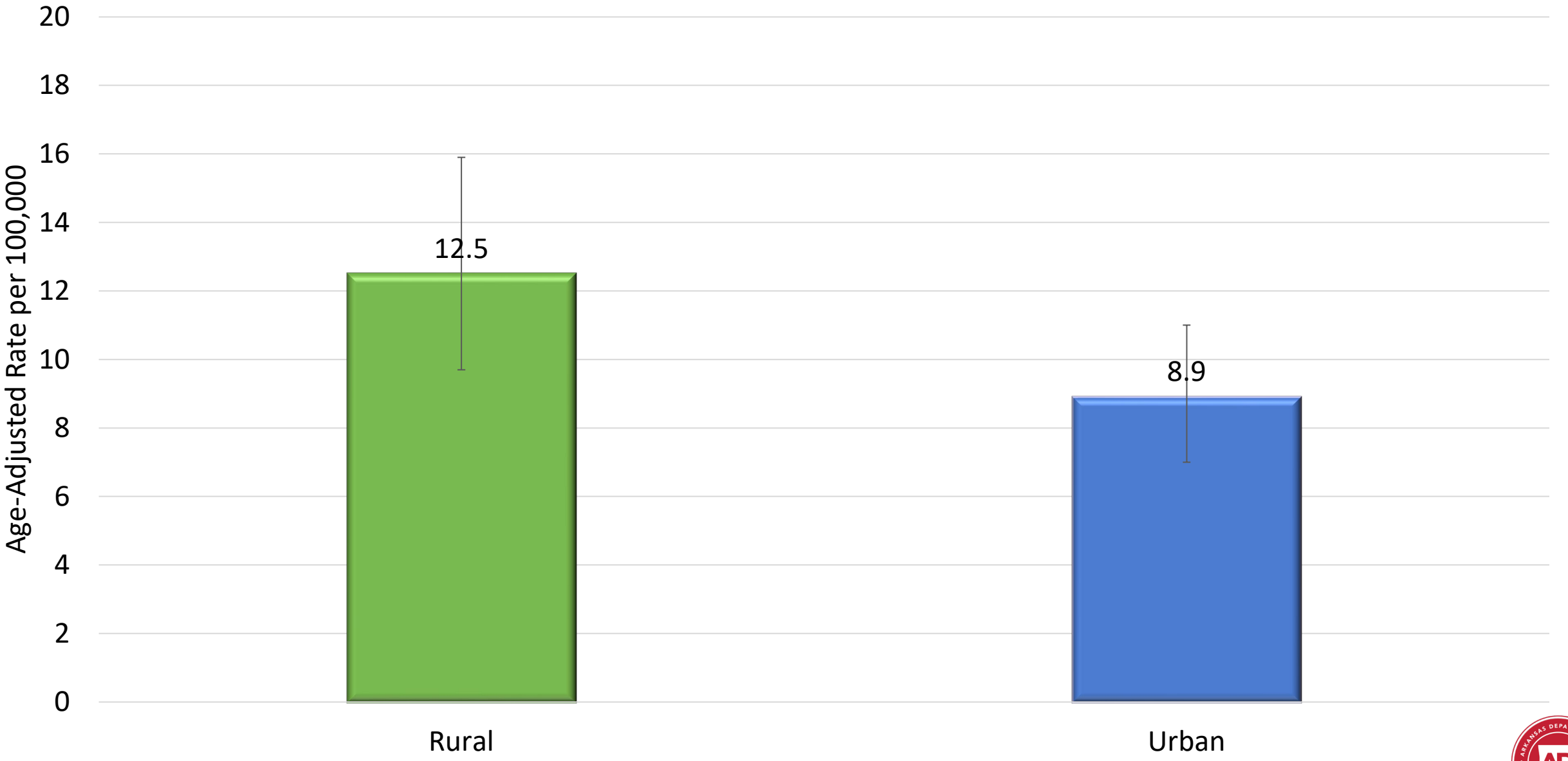
Standardized Incidence Ratio

SIR ≤ 1

SIR > 1

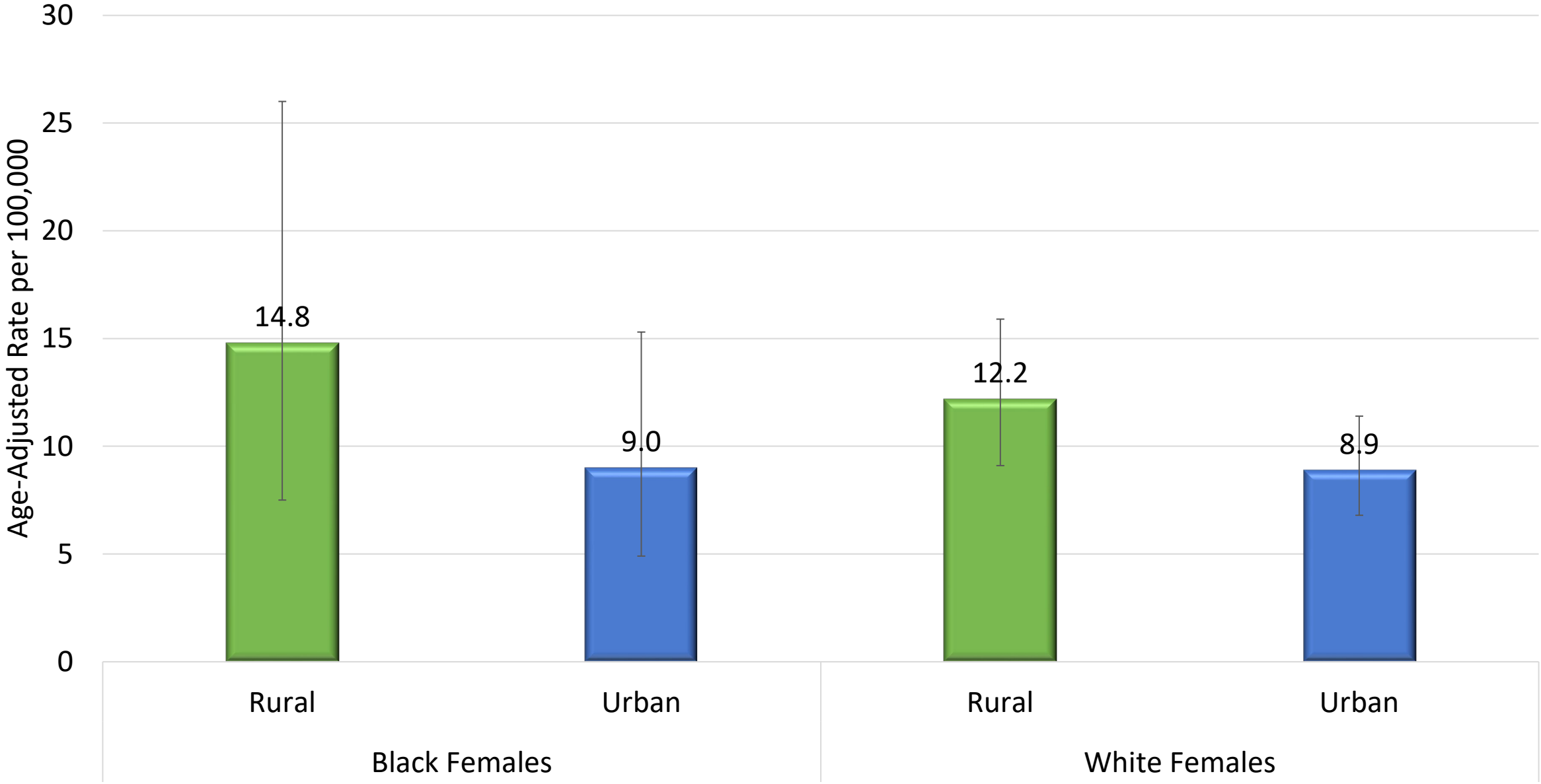
Source: CancerCORE
Created on March 14, 2022

Age-Adjusted Incidence Rate for Cervical Cancer by Urban/Rural Counties
Arkansas 2018



Source: Cancer-Rates.Info Query System

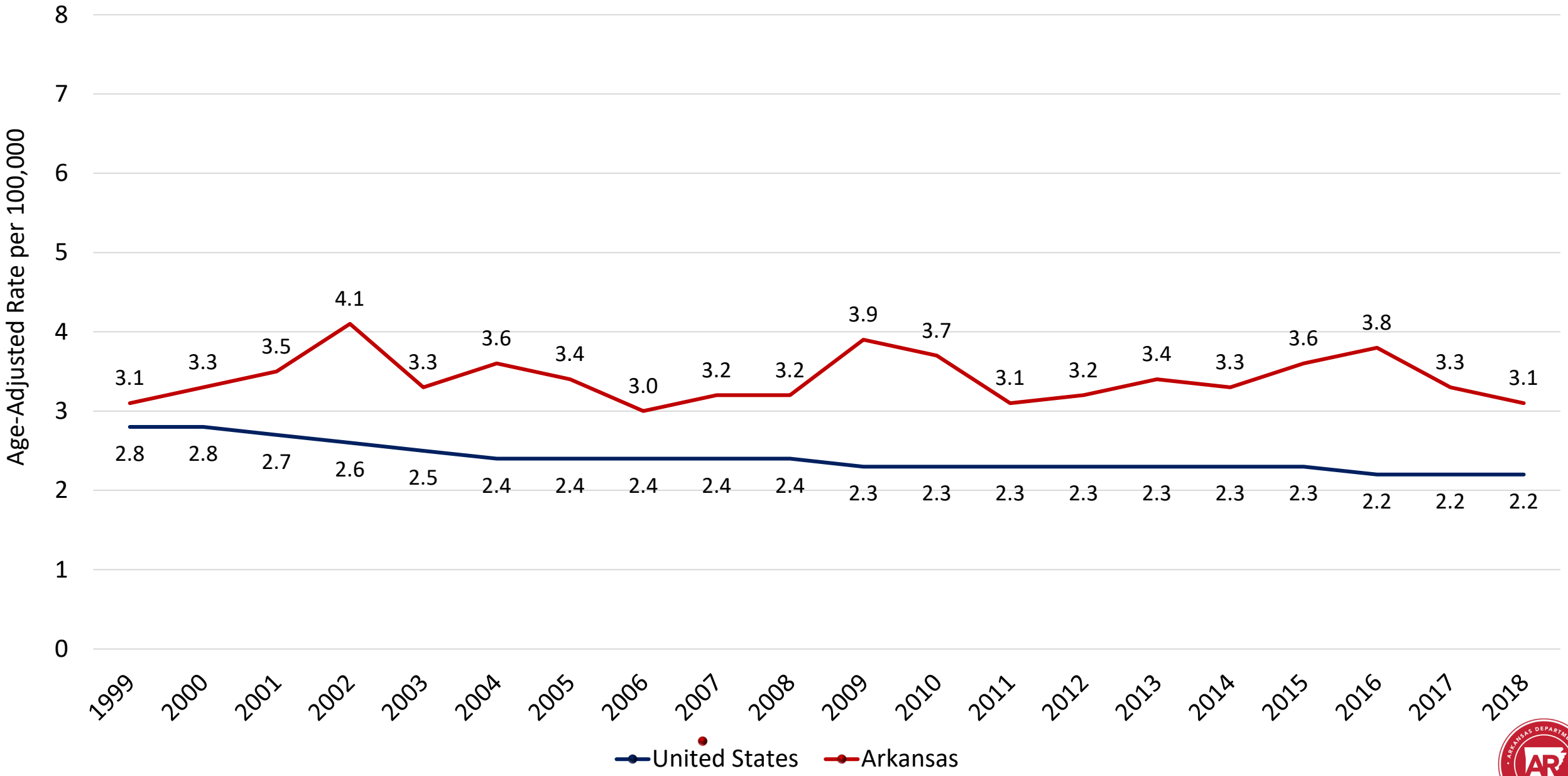
Age-adjusted Incidence Rate by Urban/Rural and Race/Ethnicity
Arkansas 2018



Source: Cancer-Rates.Info Query System

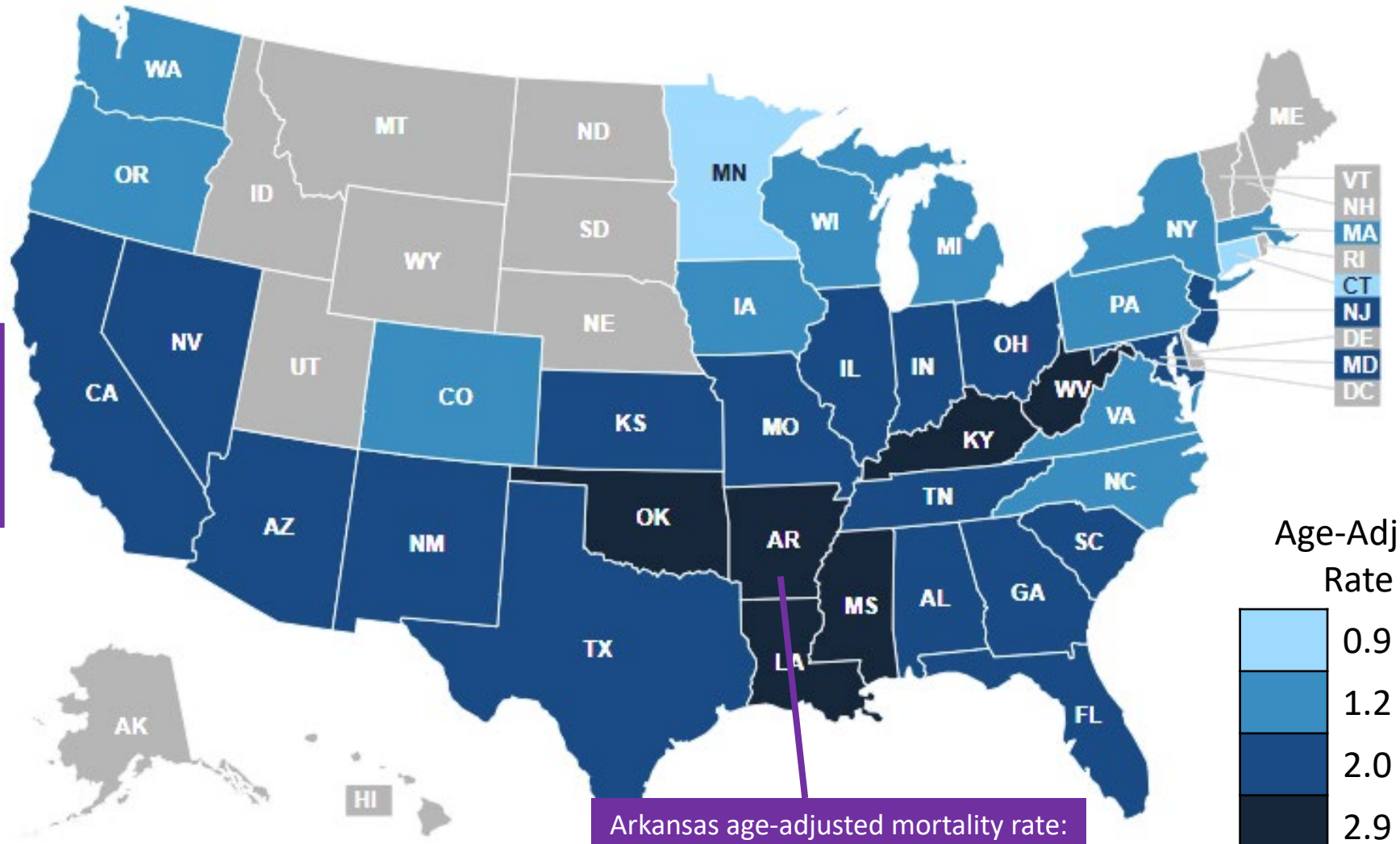
Mortality

Age-Adjusted Mortality Trend of Cervical Cancer
US and Arkansas, 1999-2018



Source: Centers for Disease Control and Prevention (CDC) Wonder

Map of Age-Adjusted Mortality Rate of Cervical Cancer by State
US and Arkansas, 2019



US age-adjusted mortality rate: **2.1 per 100,000 population**

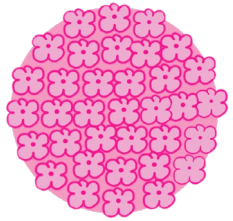
Arkansas age-adjusted mortality rate: **3.1 per 100,000 population**

Age-Adjusted Mortality Rate per 100,000

- 0.9 – 1.0
- 1.2 – 1.8
- 2.0 – 2.8
- 2.9 – 3.9
- N/A

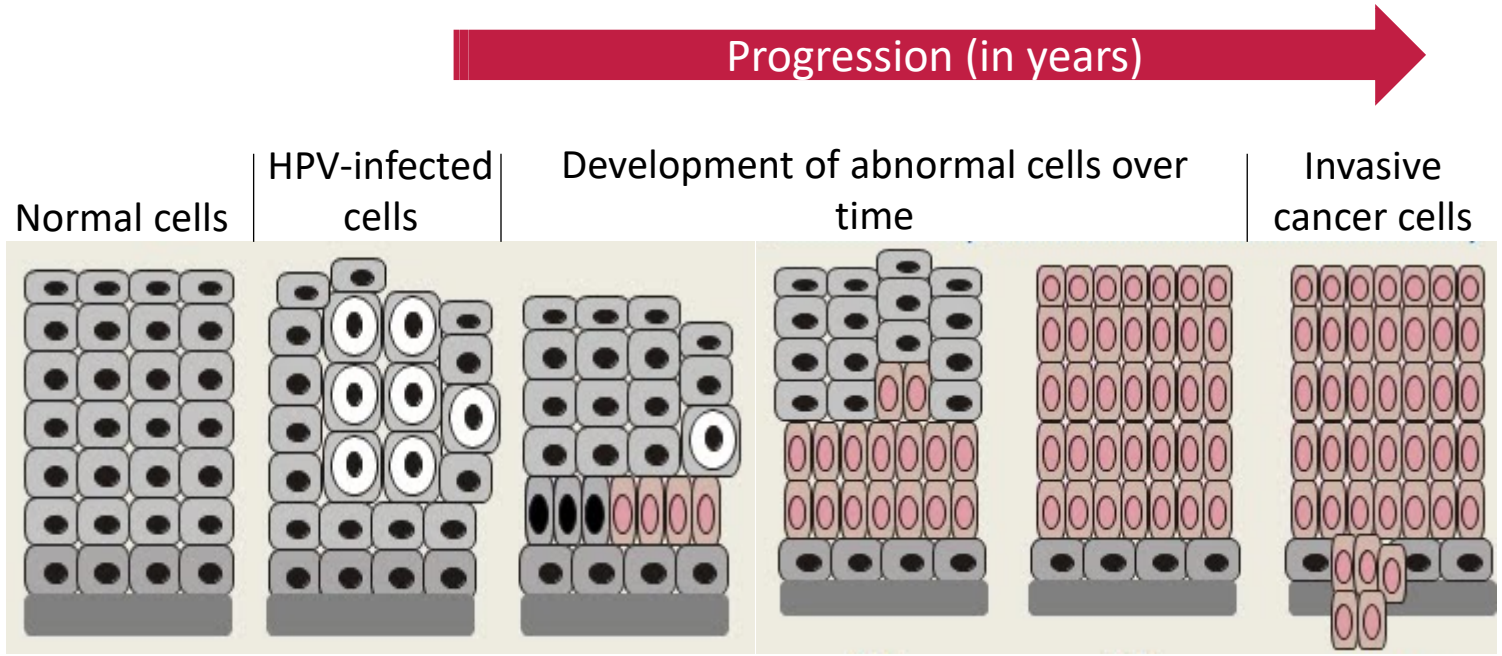
Source: CDC Wonder via Kaiser Family Foundation

HPV and Cervical Cancer



About HPV and Cervical Cancer in the US

- Most people can fight off HPV infection
- CDC: About 90% of cervical cancer cases are due to HPV infections



Source: CDC

HPV-Cervical Cancer Risk Factors (1/2)

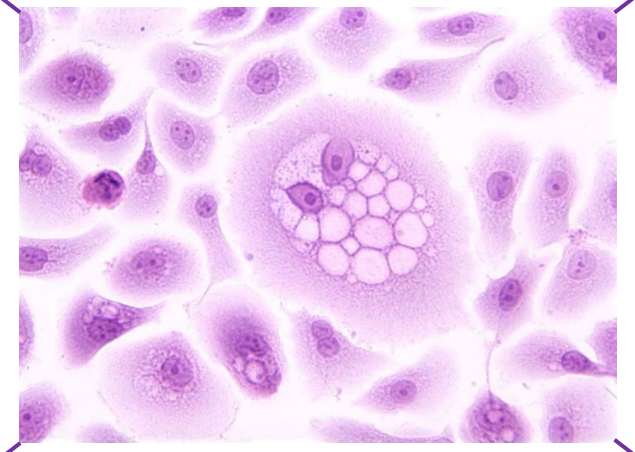
Economic Status

- Low-income females limited access to health care services, including HPV tests

Sexual History

- Many sexual partners
- Partner considered high-risk (with HPV infection or has many sexual partners)
- Sexually active at an early age

HPV infection



Multiple Full-Term Pregnancies

- Increase exposure to HPV infection with sexual activity
- Hormonal changes increasing HPV exposure

Smoking

- Can negatively impact immune system in fighting HPV infections

Source: ACS

HPV-Cervical Cancer Risk Factors (2/2)

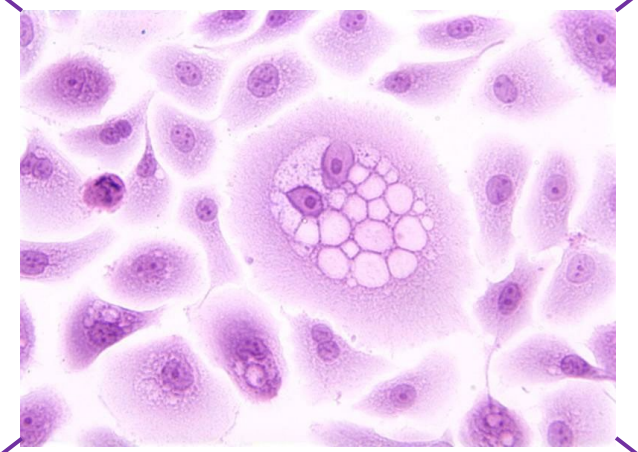
Weakened Immune System

- Higher risk of HPV infections
- Drug suppression for autoimmune diseases and organ transplant recipients
- Quick development of HPV-to-invasive-cancers among females with HIV

Family Hx of Cervical Cancer

- Some females may have a rare instance where inherited conditions are less able to fight off HPV infection

HPV infection



DES Exposure

- Increase risk of developing pre-cancers of the cervix linked to HPV

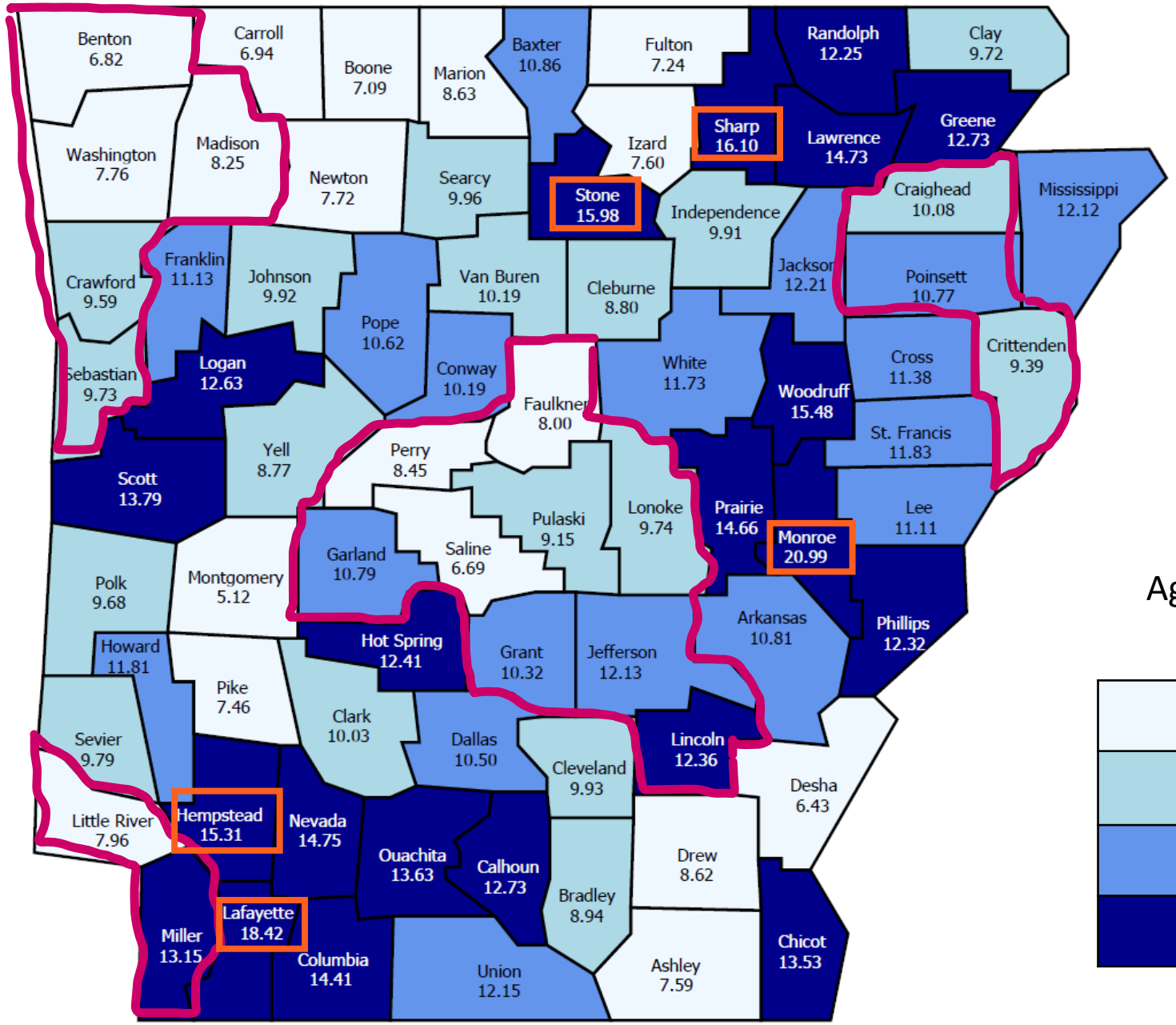
Chlamydia Infection

- Chlamydia bacteria helps HPV grow and live on in the cervix → increased risk of cervical cancer

Source: ACS

Map of Age-Adjusted Incidence Rate of HPV-Associated Cervical Cancer by County
Arkansas, 1997 - 2018

State Age-Adjusted Incidence Rate: **9.85 per 100,000 population**

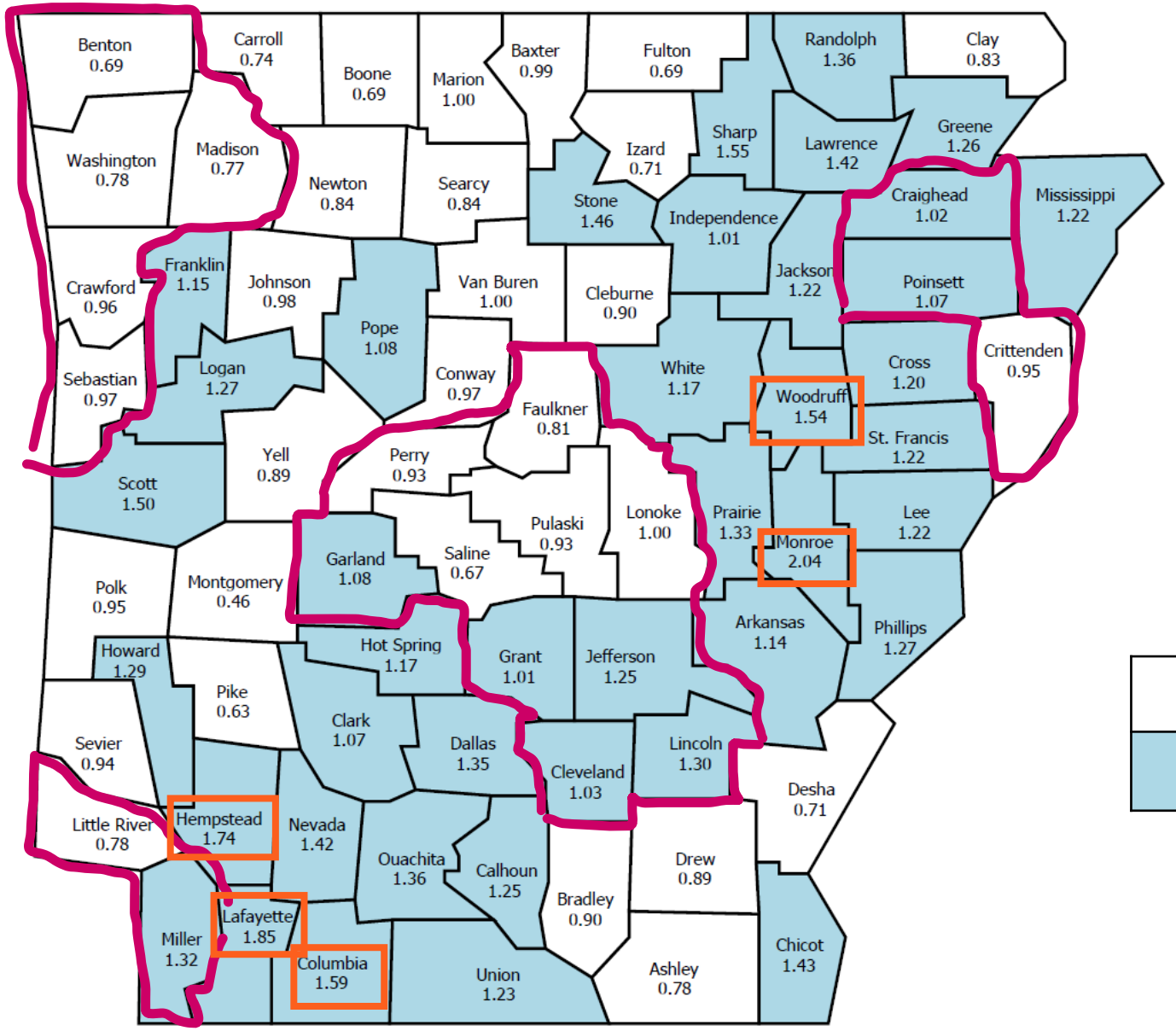


Age-Adjusted Incidence Rate per 100,000

- 5.12 – 8.76
- 8.77 – 10.18
- 10.19 – 12.24
- 12.25 – 20.99

Source: CancerCORE
Created on March 10, 2022

Standardized Incidence Ratio of HPV-Associated Cervical Cancer
Arkansas, 1997 - 2018



Standardized Incidence Ratio

SIR ≤ 1

SIR > 1

Source: CancerCORE
Created on March 10, 2022

Cervical Cancer Prevention Methods

HPV Vaccine

As of 2017, Gardasil®9 is the only HPV vaccine available in the U.S.

It is given as a series of either two or three doses, depending on age at initial vaccination.

Key Benefits

Long-lasting health benefits:

- Prevents cervical, vulvar, and vaginal infections
- Prevents cancers caused by HPV types **(including cervical cancer)**

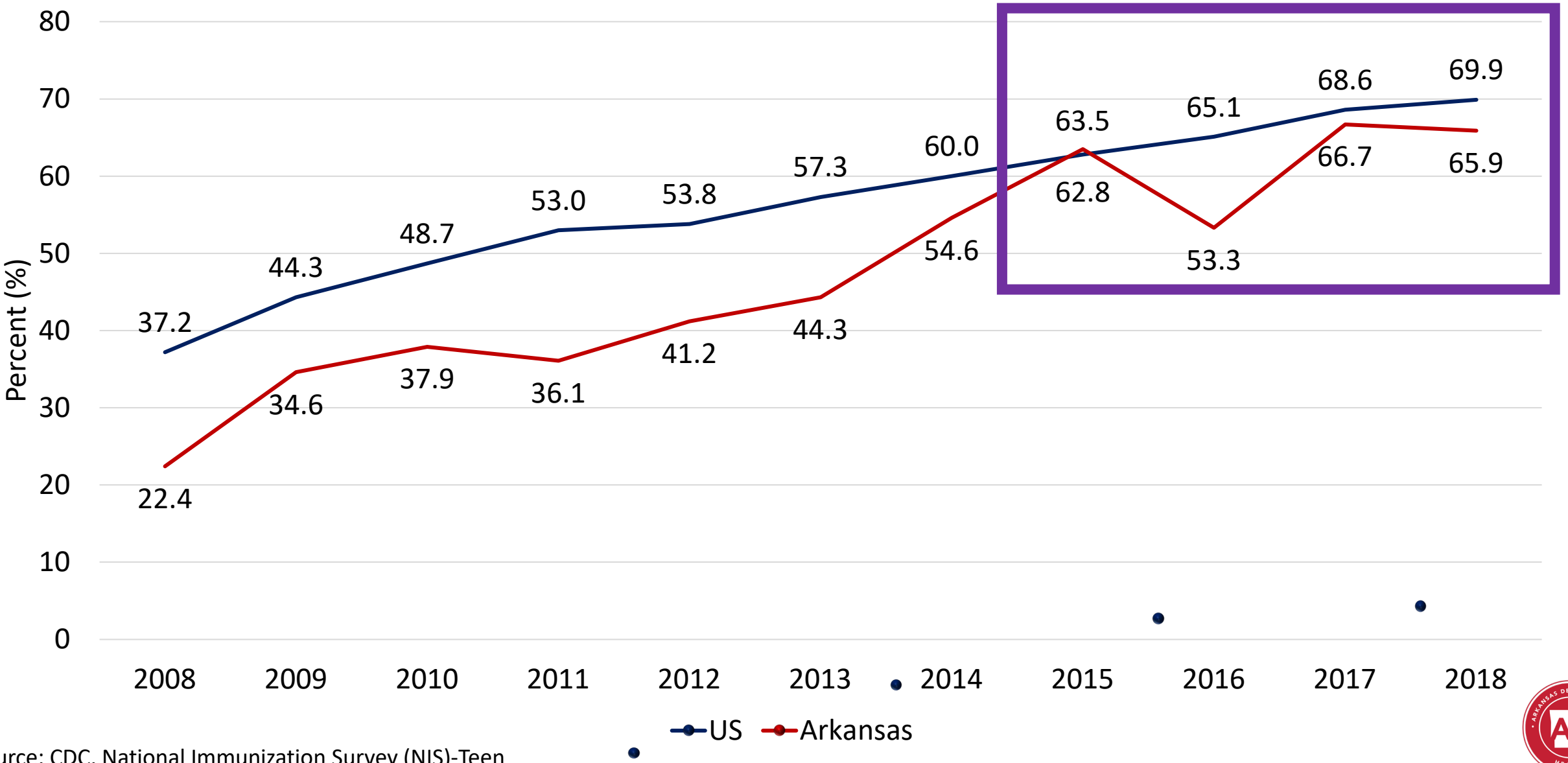
Early protection works best

ACIP Recommendations Summary

- Routine vaccination at age 11 or 12 years for both females and males (can start as early as 9 years of age)
- Recommends vaccination for everyone through age 26 years if not adequately vaccinated when younger.
- For adults ages 27 through 45 years, clinicians can consider discussing HPV vaccination with people who are most likely to benefit.
- See ACIP's shared clinical decision-making FAQs for more information: https://www.cdc.gov/vaccines/acip/acip-scdm-faqs.html

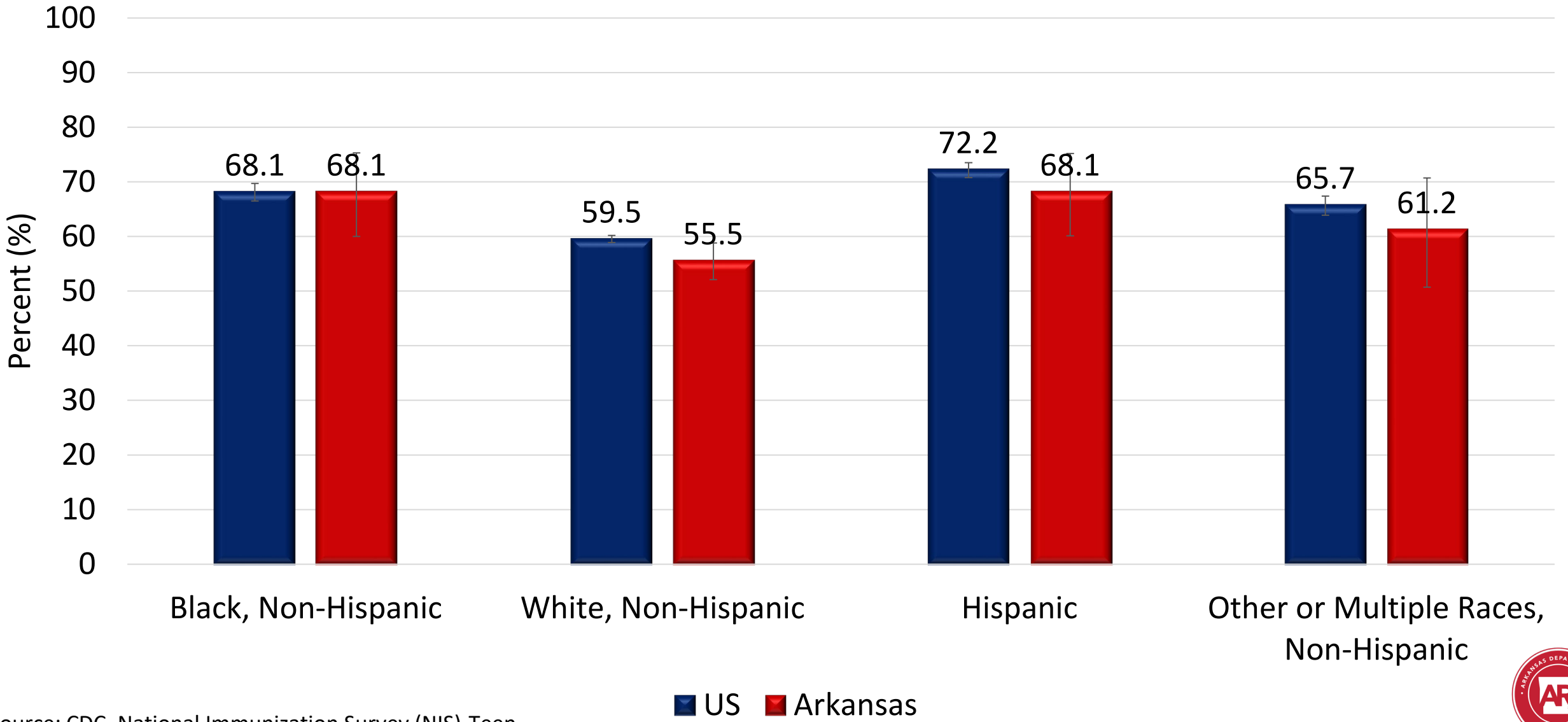
HPV Vaccination

Estimated Coverage Trend of at Least 1 HPV Vaccination Dose among Females (ages 13-17)
US and Arkansas, 2008 – 2018



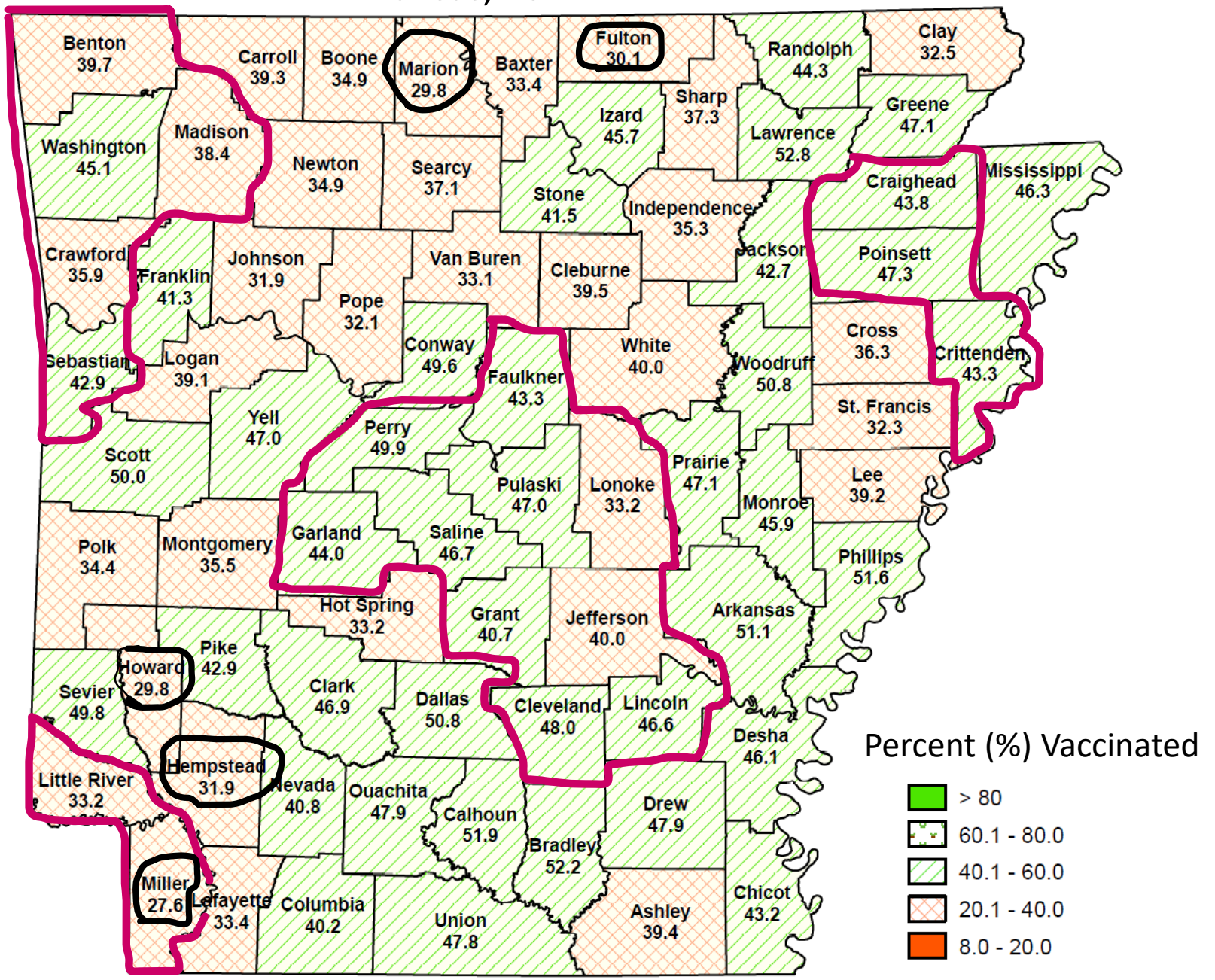
Source: CDC, National Immunization Survey (NIS)-Teen

Overall Estimated Coverage Trend of At Least 1 HPV Vaccination Dose Among Males and Females (Ages 13-17) by Race/Ethnicity US and Arkansas 2015 – 2019



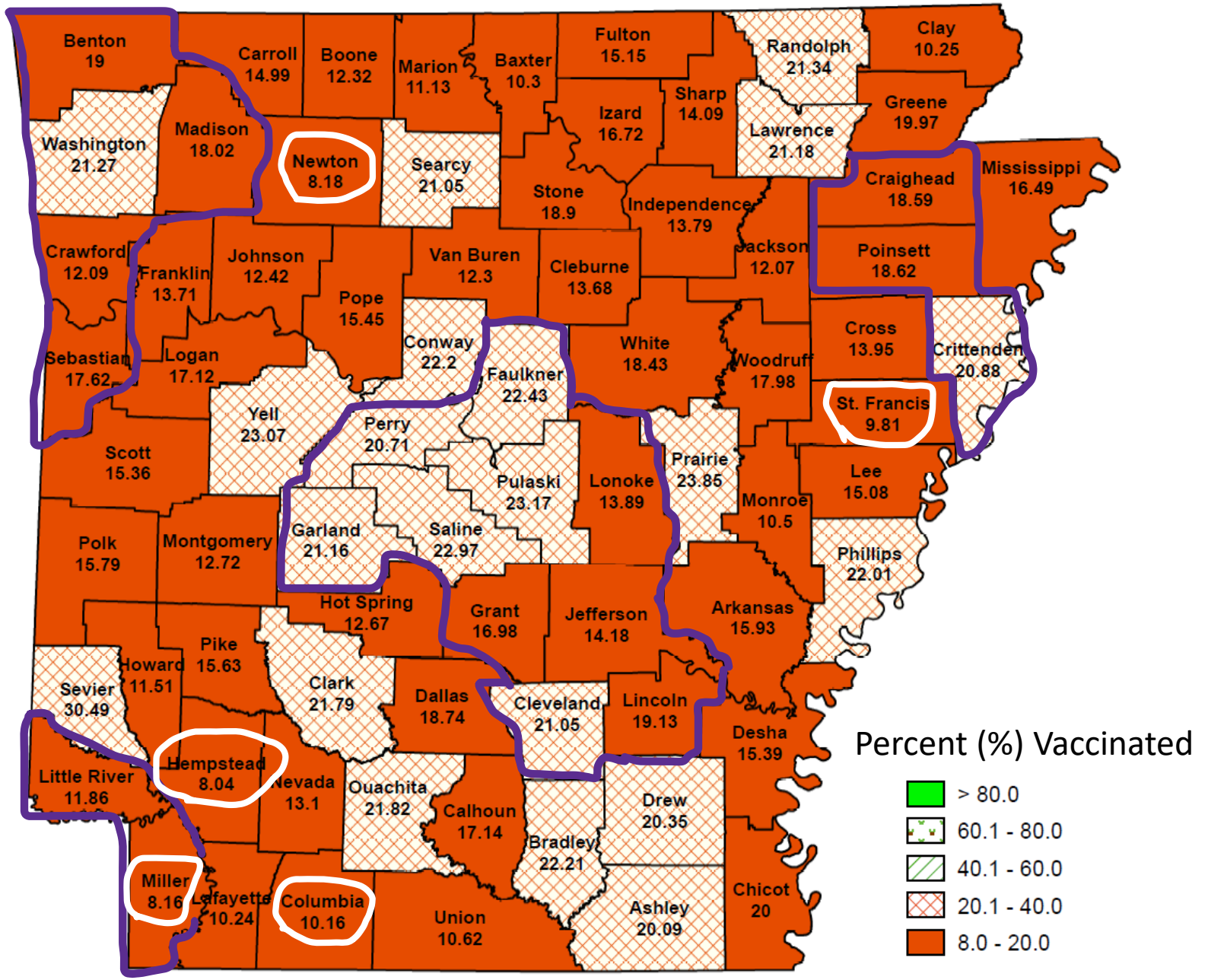
Source: CDC, National Immunization Survey (NIS)-Teen

Vaccination Rate of **at least 1 HPV Vaccination** Dose among Children (ages 11 – 14) by County Arkansas, 2021



Map created by ADH Epidemiologist
Dr. Haytham Safi on 3/25/2022

Vaccination Rate of **at least 2 HPV Vaccination Doses** among Children (ages 11 – 14) by County Arkansas, 2021



Map created by ADH Epidemiologist
Dr. Haytham Safi on 3/25/2022

Intrauterine Devices (IUD) to Lower Risk?

ACS: "Some research suggests that women who had ever used an intrauterine device (IUD) had a lower risk of cervical cancer."

2011 Pooled Analysis Study

- Evaluation of risk between IUD-cervical HPV infection (1993–2007 cross-sectional study) and risk between IUD-cervical cancer (1985-1997 case-control study). **NOTE: Did not include USA**
- **Summarized Findings**
  - **No association between IUD-cervical HPV infection** among females without cervical cancer
  - **Inverse association between IUD and cervical cancer** among females without HPV infection (OR=0.55, 0.43-0.72; p<0.001)
- **Possible protective mechanism**:
  - Inflammatory immune response
  - Elimination of preinvasive cervical cancer lesions
- **Caution in interpretation:** Study has various limitations such as study design timeline, exclusions of certain studies due to differences in survey collection, unknown type of IUD used, information and self-reported bias.

Source: Castellsagué et al. Lancet Oncol. (2011) 11:1023-31. doi: 10.1016/S1470-2045(11)70223-6

Cervical Cancer TNM Staging – UPDATE

The new (Version 9) American Joint Committee on Cancer tumor, node, metastasis staging for cervical cancer

Alexander B Olawaiye [1], Thomas P Baker [2], M Kay Washington [3], David G Mutch [4]

Affiliations + expand

PMID: 33784415 DOI: 10.3322/caac.21663

Free article

Abstract

The American Joint Committee on Cancer (AJCC) tumor, node, metastasis (TNM) staging for all cancer sites has been periodically updated as a published manual for many years. The last update, the eighth edition AJCC Cancer Staging Manual went into use on January 1, 2018. The AJCC has since restructured and updated its processes, and all AJCC staging-related data are now housed on its new application programming interface. Consequently, the next AJCC TNM staging update, AJCC version 9 TNM staging, will be published electronically and will be released chapter by chapter. The first chapter of version 9 AJCC TNM staging is the updated cervical cancer staging, which is now published. This article highlights the changes to the AJCC TNM cervical cancer staging; these changes align with the International Federation of Gynecology and Obstetrics staging. The most important of the changes are: 1) the incorporation of imaging and surgical findings, 2) the elimination of lateral spread from T1a, 3) the addition of a subcategory to T1b (T1b3), and 4) histopathology is updated to reflect human papillomavirus-associated and human papillomavirus-independent carcinomas.

Keywords: American Joint Committee on Cancer (AJCC); cervix; staging; version 9.

Cervical Cancer TNM Staging - UPDATED AVAILABLE (continued)

AJCC
American Joint Committee on Cancer

AJCC Cervix Uteri - Version 9 Cancer Staging System

Overview | Faculty | Accreditation | Register/Take course

This presentation will examine the new Version 9 format for cervix and explore the important changes in the new cervix staging. The major differences between the 8th edition and Version 9 will be discussed. This presentation will examine the new Version 9 format for cervix and explore the important changes in the new cervix staging. The major differences between the 8th edition and Version 9 will be discussed.

Target Audience

- Certified Tumor Registrars
- Cancer Program Administrators
- Nurses
- Other allied health professionals

Learning Objectives

- Examine cervix uteri Version 9 format.
- Discover important changes in cervix staging.
- Evaluate access to protocol for Cancer Staging.

Contact

- For questions about the course, please contact CoC@facs.org.
- For questions about the CoC, NAPBC, or NAPRC Standards, submit questions in the CAnswer Forum.
- If you have any technical questions, contact learning@facs.org.

Course summary

Course opens:	01/31/2021
Course expires:	02/01/2024

Thank you!

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