



Mississippi Morbidity Report

Immunization for Human Papillomavirus in Mississippi - Room for Improvement

Key Messages:

- **Human Papillomaviruses (HPVs) cause the majority of cervical, vaginal, penile, oropharyngeal and anal cancers in the U.S.**
- **Over 1/3 of HPV related malignancies occur in males.**
- **Highly effective vaccines are available to prevent infection and subsequent malignancy in males and females.**
- **Some vaccines also protect against the development of genital warts (HPV 6 &11).**
- **HPV vaccines are woefully underutilized in the U.S. and especially in MS.**
- **HPV vaccination of adolescents and young adults does not increase sexual activity or associated secondary events such as pregnancy.**

Background:

Human papillomavirus (HPV) is a DNA virus with more than 40 different genotypes. It is the most common sexually transmitted disease with over 14 million new cases in the U.S. annually. Although the majority of infections resolve spontaneously, persistent infection over years can lead to the development of malignancies. Certain genotypes, especially HPV 16 &18, are strongly associated with the development of cervical cancer, oropharyngeal squamous cell cancer, anal cancer and penile cancer. A majority of cancers at these sites are caused by previous HPV infections (Table 1). Highly effective vaccinations are available to prevent infections with common oncogenic subtypes and other subtypes that can cause genital warts.

Table 1: Percentage of Cancers Caused by HPV by Location, U.S.

| Cancer Location | Percentage Attributable to HPV |
|-----------------|--------------------------------|
| Cervical | >91% |
| Anal | 91% |
| Vaginal | 75% |
| Oropharyngeal | 72% |
| Vulvar | 69% |
| Penile | 63% |

Epidemiology of HPV Associated Malignancies in Mississippi and the U.S.:

There are approximately 33,200 HPV related malignancies in the U.S. each year. HPV related malignancies are not restricted to females; over 1/3 occur in males (approximately 20,600 in females and 12,600 in males annually). There were 1,460 cases of cervical cancers in MS between 2003 and 2012. The rate of cervical cancer in MS in 2012 (9.68 per 100,000) was 23% higher than the national rate (7.9 per 100,000). There are significant racial disparities nationally, with a rate of 9.2 per 100,000 in African Americans versus 7.7 per 100,000 in Caucasians annually. In Mississippi the disparity is even more pronounced at 11.4 per 100,000 in African Americans versus 8.51 per 100,000 in Caucasians.

HPV Vaccination Recommendations:

Three different HPV vaccines are currently licensed for use in the U.S. Cervarix (HPV2), a bivalent preparation with coverage against oncogenic genotypes 16 & 18, is approved for use in females only. Gardasil (HPV4), a quadrivalent preparation with coverage against the oncogenic genotypes 16 & 18 and genital wart forming genotypes 6 & 11, is approved for use in males and females. Gardasil 9 (HPV9), recently approved for use in males and females, offers protection against seven oncogenic genotypes and two genital wart forming genotypes (6,11,16,18,31,33,45,52,58). HPV4 has been available for almost a decade and on-going protection studies have found that protection is long lasting. The Advisory Committee on Immunization Practice recommends routine HPV vaccination as a three dose series with any of the available preparations for females 11 – 26 years of age, preferably beginning at age 11 or 12. Vaccination with HPV4 or HPV9 is recommended for males aged 13 through 21 years who have not been vaccinated previously or who have not completed the 3-dose series. It is acceptable for patients receiving initial doses of HPV2 or HPV4 (first or second dose) to complete the series with HPV9 if needed.

HPV Immunization in MS and the U.S.:

Use of HPV vaccines has been disappointing. In the most recent national immunization survey (NIS) only 60% of adolescent females have received one or more doses of an HPV vaccine. Overall in the same age group only 35% of females have completed the 3 dose series. For males HPV was licensed in 2009 and the most recent survey shows 40% receiving one or more doses. Overall only 20% of males have received the 3 dose series. Table 2 shows MS usage of HPV vaccine among females aged 13-17 over the past several years. It should be noted our state ranks consistently 48 or higher (out of 50 states and DC) for both sexes. After initial increases, HPV immunization rates in MS show a decline for 2015. Greater than 90% of HPV associated malignancies could be prevented through the proper administration of available HPV vaccines.

Table 2: HPV Immunization Rates for Females 13 – 17: Mississippi compared to the U.S., 2011 – 2014

| | MS | U.S. |
|----------------|-----------|-------------|
| ≥ 1 Dose 2011 | 31.9% | 53.0% |
| ≥ 3 Doses 2011 | 19.6% | 34.8% |
| ≥ 1 Dose 2012 | 39.7% | 53.8% |
| ≥ 3 Doses 2012 | 12.1% | 33.4% |
| ≥ 1 Dose 2013 | 53.1% | 57.3% |
| ≥ 3 Doses 2013 | 25.2% | 37.6% |
| ≥ 1 Dose 2014 | 45.8% | 60.0% |
| ≥ 3 Doses 2014 | 24.6% | 39.7% |

HPV Immunization and Impact on Sexual Activity:

Studies have consistently shown that HPV vaccination does not increase the risk of sexual activity, pregnancy, or sexually transmitted disease diagnosis or testing. Vaccinating teens and preteens between the ages of 11 to 13, as outlined above, is the best way to prevent HPV related malignancies.

Guidance for MS Providers on the Use of HPV Vaccine:

MSDH urges all providers to immunize male and female pre-teens and teens as recommended by ACIP. HPV related malignancies, including non-genital sites, are largely preventable through the appropriate use of approved HPV vaccines, ideally administered at ages 11 or 12 for females or 13 for males. HPV9 gives the widest protection in females and males and is considered by MSDH to be the primary vaccine for protection against HPV infection in adolescents and young adults.

Influenza Vaccination: Recommendations of the Advisory Committee on Immunization Practices (ACIP), United States, 2015–16

Annual influenza immunization is recommended for all persons ≥ 6 months of age who do not have contraindications. Children 6 months through 8 years of age who have not been previously vaccinated should receive two flu shots, separated by ≥ 4 weeks. 2015 ACIP guidance supports the use of either Live Attenuated Influenza Vaccine (LAIV) or injected Inactive Influenza Vaccine (IIV) for healthy children (2 – 8 years of age), without preference for one product over the other. Although influenza immunization is recommended for everyone over 6 months of age, certain groups at higher risk for adverse events from influenza should be approached with additional urgency. These groups include: children 6 months to 4 years of age, adults over 50, pregnant women, those with chronic diseases or immunocompromised states, those with morbid obesity (BMI > 40) and household contacts to those at increased risk for complications. High-dose flu vaccine is recommended for those ≥ 65 years of age.

2015-2016 Influenza Vaccines: For 2015–16, U.S.-licensed trivalent influenza vaccines will contain hemagglutinin (HA) derived from an A/California/7/2009 (H1N1)-like virus, an A/Switzerland/9715293/2013 (H3N2)-like virus, and a B/Phuket/3073/2013-like (Yamagata lineage) virus. This represents changes in the influenza A (H3N2) virus and the influenza B virus as compared with the 2014–15 season. Quadrivalent influenza vaccines will contain these vaccine viruses, and a B/Brisbane/60/2008-like (Victoria lineage) virus, which is the same Victoria lineage virus recommended for quadrivalent formulations in 2013–14 and 2014–15. Available influenza vaccine formulations include quadrivalent intradermal, trivalent intramuscular, quadrivalent intramuscular, quadrivalent nasal (LAIV) and intramuscular high-dose. Patients with a history of mild egg allergy can typically receive any appropriate formulation. For individuals with severe reactions to egg products, recombinant or cell-culture vaccines may be appropriate. For detailed guidance and information on available products, please visit <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6430a3.htm#Tab>. Early indications for 2015 suggest a predominance of Influenza A H3N2, similar to the 2014-2015 season, and the current flu vaccines seem to be well matched to circulating strains.

Immunization of Healthcare Workers: Due to the likelihood of exposure and the risk of subsequent transmission, all eligible healthcare workers should be immunized against influenza. Based on National Healthcare Safety Network (NHSN) data reported to MSDH, MS improved from 75.6% of healthcare employees vaccinated in 2013-2014 to 88.4% for 2014-2015. The national average for 2014-2015 was 88.6%. Immunization rates among healthcare workers in long-term care settings are lower than in other settings, with only 63.9% vaccinated according to 2015 CDC data. Mississippi long-term care facilities experiencing flu outbreaks during the 2014-2015 flu season had even lower immunization rates; 39% on average. For resources to improve healthcare vaccination rates in LTC facilities, please visit: <http://www.cdc.gov/flu/toolkit/long-term-care/strategies.htm>.



November 16-22, 2015 is Get Smart about Antibiotics Week

The use of antibiotics is the single most important factor which contributes to antibiotic resistance, and up to one-third to one-half of antibiotic use in humans is either unnecessary or inappropriate. Prescribing antibiotics when they are not needed creates additional health risks by increasing the chances a patient will experience an adverse drug reaction, and also leads to the development of antibiotic-resistant bacteria which affects everyone in the community.

MSDH asks providers to:

- Avoid treating viral syndromes with antibiotics, even when patients ask for them.
- Be aware of antibiotic-resistance patterns in your area so that you can always choose the right antibiotic.
- Hospital and nursing home providers should reassess the appropriateness of treatment within 48 hours of starting an antibiotic, when the patient's culture results come back. Adjust the prescription, if necessary. Stop the prescription, if indicated.
- Talk to your patients about appropriate use of antibiotics.
- Prevent the spread of infections through the appropriate implementation of hand hygiene and infection control best practices.
- Please visit www.cdc.gov/getsmart for additional information and tools to prevent the spread of antibiotic resistant organisms.



Mississippi

Provisional Reportable Disease Statistics

October 2015

| | | Public Health District | | | | | | | | | State Totals* | | | |
|-------------------------------|---------------------------------------|------------------------|-----|-----|-----|-----|-----|-----|------|-----|---------------|----------|----------|----------|
| | | I | II | III | IV | V | VI | VII | VIII | IX | Oct 2015 | Oct 2014 | YTD 2015 | YTD 2014 |
| Sexually Transmitted Diseases | Primary & Secondary Syphilis | 0 | 1 | 1 | 0 | 8 | 0 | 0 | 1 | 0 | 11 | 27 | 171 | 162 |
| | Early Latent Syphilis | 1 | 1 | 1 | 1 | 11 | 0 | 0 | 2 | 4 | 21 | 37 | 320 | 289 |
| | Gonorrhea | 82 | 44 | 92 | 52 | 175 | 46 | 38 | 77 | 100 | 706 | 517 | 4,592 | 4,693 |
| | Chlamydia | 248 | 227 | 259 | 212 | 554 | 156 | 109 | 197 | 256 | 2,218 | 1,902 | 13,802 | 16,298 |
| | HIV Disease | 3 | 2 | 4 | 2 | 21 | 2 | 1 | 4 | 5 | 44 | 55 | 485 | 433 |
| Mycobacterial Diseases | Pulmonary Tuberculosis (TB) | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 4 | 7 | 45 | 56 |
| | Extrapulmonary TB | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 7 | 8 |
| | Mycobacteria Other Than TB | 0 | 4 | 0 | 1 | 3 | 1 | 1 | 1 | 4 | 15 | 23 | 363 | 313 |
| Vaccine Preventable Diseases | Diphtheria | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Pertussis | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 13 | 60 |
| | Tetanus | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Polio | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Measles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Mumps | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Hepatitis B (acute) | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 42 | 39 |
| | Invasive <i>H. influenzae</i> disease | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 4 | 1 | 35 | 22 |
| | Invasive Meningococcal disease | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Enteric Diseases | Hepatitis A (acute) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 |
| | Salmonellosis | 19 | 24 | 7 | 9 | 19 | 10 | 9 | 4 | 11 | 112 | 111 | 949 | 896 |
| | Shigellosis | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 5 | 9 | 10 | 85 | 178 |
| | Campylobacteriosis | 1 | 0 | 3 | 0 | 7 | 2 | 1 | 2 | 1 | 17 | 12 | 155 | 97 |
| | <i>E. coli</i> O157:H7/STEC/HUS | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 5 | 1 | 22 | 30 |
| Zoonotic Diseases | Animal Rabies | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 |
| | Lyme disease | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| | Rocky Mountain spotted fever | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 5 | 72 | 50 |
| | West Nile virus | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 4 | 36 | 43 |

*Totals include reports from Department of Corrections and those not reported from a specific District.