

April 2016

Volume 2 | Issue 2

Delaware Journal of

# Public Health

*A publication of the Delaware Academy of Medicine / Delaware Public Health Association*



\*Sexually Transmitted Infections



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# Delaware Journal of Public Health

April 2016  
Volume 2 | Issue 2

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### COVER

Although sexually transmitted infections are largely preventable, they continue to impose burdens such as high costs and complications, and remain a significant public

health issue. The enclosed circle backslash signifies that by increasing awareness and prevention of STIs, we can reduce resulting, irreversible complications and long-term health problems, and improve reproductive health in the community.

The Delaware Journal of Public Health (DJPH), first published in 2015, is the official journal of the Delaware Academy of Medicine / Delaware Public Health Association (Academy/DPHA).

**Submissions:** Contributions of original unpublished research, social science analysis, scholarly essays, critical commentaries, departments, and letters to the editor are welcome. Questions? Write [chealy@delamed.org](mailto:chealy@delamed.org) or call Liz Healy at 302-733-3989.

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### Delaware Journal of Public Health

Omar Khan, M.D., M.H.S., F.A.A.F.P.

*Editor-in-Chief*

okhan@christianacare.org

Awele N. Maduka-Ezeh, M.D., MPH

*Guest Editor*

Liz Healy

*Deputy Editor*

ehealy@delamed.org

Christian Derr

*Image Director*

info@christianrderr.com



# UPCOMING EVENTS IN DELAWARE

**Tuesday, April 19, 2016**

The Delaware State Health Improvement Plan (SHIP)  
Semi-Annual Event

**Thursday, April 21, 2016**

Delaware Academy of Medicine/ Delaware Public Health  
Association 86<sup>th</sup> Annual Meeting

**Monday and Tuesday, May 2 & 3, 2016**

Delaware Coalition Against Domestic Violence's  
2016 Annual Advocate's Retreat and Conference  
Atlantic Sands Hotel and Conference Center,  
Rehoboth Beach

**Tuesday, May 3, 2016**

Christiana Care Health System's 53<sup>rd</sup> Annual William J.  
Holloway Infectious Disease Symposium,  
John Ammon Medical Education Center, CCHS

**Wednesday, May 4, 2016**

Nemours' Pediatric Kaleidoscope 2016  
A.I. duPont Hospital for Children

**Thursday, May 12, 2016**

University of Delaware's Elder Abuse  
and Exploitation Conference  
Clayton Hall, University of Delaware, Newark

**Friday, May 13, 2016**

Nemours' Pediatric Emergency Medicine Skills Course  
for Emergency Physicians  
A.I. duPont Hospital for Children

**Thursday, May 26, 2016**

National Council for Behavioral Health's Clinical Tools  
for Chronic Pain Management among Individuals with  
Substance Use Disorders

**SAVE THE DATE - Wednesday, June 1, 2016**

Delaware Coalition for Healthy Eating and Active Living  
(DE-HEAL)'s Achieving Healthy Weights in the 1<sup>st</sup> State,  
Delaware State University, Dover

**Week of June 20-24, 2016**

University of Delaware's 39<sup>th</sup> Annual Eastern Shore  
Medical Symposium  
The Bay Center and Cove at the Hyatt Place,  
Dewey Beach

**Tuesday, June 21, 2016**

National Council for Behavioral Health's Adjunct  
Approaches to Chronic Pain Management for Individuals  
with Substance Abuse Disorders

*For general inquiries about the Delaware Journal of Public Health or possible contributions for upcoming issues, please contact Liz Healy*

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Similar to the APHA, sections serve as the primary professional units  
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4765 Ogletown-Stanton Road  
Suite L10  
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*The Delaware Academy of Medicine is a private, nonprofit organization founded in 1930. Our mission is to enhance the well being of our community through medical education and the promotion of public health. Our educational initiatives span the spectrum from consumer health education to continuing medical education conferences and symposia.*

*The Delaware Public Health Association was officially reborn at the 141<sup>st</sup> Annual Meeting of the American Public Health Association (APHA) held in Boston, MA in November, 2013. At this meeting, affiliation of the DPHA was transferred to the Delaware Academy of Medicine officially on November 5, 2013 by action of the APHA Governing Council. The Delaware Academy of Medicine, who's mission statement is "to promote the well-being of our community through education and the promotion of public health," is honored to take on this responsibility in the First State.*

# DID YOU KNOW?

## STI vs. STD

The term STI is used to reflect the reality that medically, infections are only called diseases when they cause symptoms.



Delaware is 35<sup>th</sup> among the 50 states in the number of HIV diagnoses in 2013.



Among adolescents, 59% were reported to have had sexual intercourse.



58.7% did not use a condom during last sexual intercourse.

Dear Colleague,

Welcome to spring! We are pleased to share with you the successful launch of the Delaware Medical Orders for Scope of Treatment (DMOST) program on Friday, April 1, 2016. To the incredible group that came together to make that possible, *we thank you all - staff, volunteers, our colleagues in other nonprofit agencies, and in the State.* This will continue to be a shared effort on behalf of all Delawareans, and we've got a great team.

This issue is dedicated to Sexually Transmitted Infections (STIs) also commonly referred to as STDs. We use the term STIs to reflect the reality that medically, infections are only called diseases when they cause symptoms. As we know, people can be asymptomatic for varying periods of time (including for their entire life), and so prevention, detection, surveillance, and early treatment are key to addressing STIs in our community.

The impact of STIs in Delaware is far reaching. First, let's look at HIV. Delaware ranked 35<sup>th</sup> among the 50 states in the number of HIV diagnoses in 2013. Among adolescents, 59% were reported to have had sexual intercourse (at least once), and 58.7% did not use a condom during last sexual intercourse. Hopeful news on the HIV front is PrEP (Pre-Exposure Prophylaxis) and PEP (Post-Exposure Prophylaxis). On May 26, 2016 the Academy/DPHA is partnering with the Delaware HIV Consortium for a PrEP Conference to engage the provider community in this important area of prevention & treatment.

Beyond HIV, there are the other STIs, such as Syphilis, Chlamydia, Gonorrhea, HPV, Hepatitis B and C - and now Zika virus. How do we respond to these old and new STIs, and how do we change the culture and the conversation around them? These are some of the topics covered in this issue, and we welcome Dr. Awele N. Maduka-Ezeh, MD, MPH, Medical Director, Delaware Division of Public Health as our guest editor for this issue.

We also have exciting news about our Annual Meeting – coming up soon! - on Thursday, April 21, 2016, where we will bestow the Public Health Award to an individual for the first time. That recipient will be Delaware Governor Jack Markell, and we recognize him for the transformational role he has had in our state's healthcare delivery system, as well as for championing initiatives in reproductive health, addictions, clean air, tobacco cessation and the expansion of Delaware's greenways and bikeways. We hope you'll join us at this event by registering online at [www.delamed.org/annualmeeting](http://www.delamed.org/annualmeeting).

Sincerely,



Omar A. Khan,  
MD, MHS, FAAFP  
*President*  
Delaware Public Health  
Association

Omar Khan,  
MD, MHS, FAAFP  
*President*



Timothy E. Gibbs, MPH  
*Executive Director*  
Delaware Academy of  
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Public Health Association

Timothy Gibbs, MPH  
*Executive Director*



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# About this Issue

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Awele N. Maduka-Ezeh, MD, MPH  
*Guest Editor, April 2016*

**S**exually transmitted infections (STIs) have plagued mankind for all of recorded history. Despite medical and technologic advances, they continue to be a significant cause of morbidity today. Clinicians and public health practitioners alike continue to grapple with the difficulties around prevention, early identification and adequate treatment of these diseases that are so closely intertwined with human behavior.

There is much to celebrate with regard to STIs. New and efficient diagnostic modalities such as nucleic acid testing for gonorrhea, chlamydia, and trichomonas are largely replacing the older and slower methods. Effective and relatively easy therapeutic options have emerged for the treatment of HIV and Hepatitis C. Effective vaccines against Human papillomavirus are now widely available.

Nonetheless, several challenges remain in the campaign against STIs. There are the age-old challenges of modifying human behavior (issues which impact condom use, number of sexual partners, uptake of HPV vaccination), and of reducing the impact of stigma on the identification and adequate treatment of STIs.

In addition, in 2016 we are faced with new and increasing challenges related to STIs. There is the ongoing problem of emergence of antibiotic resistance in gonorrhea isolates. There is the use of social media and digital apps as a means of networking that has increased, by several orders of magnitude, the complexity of sexual networks and the numbers of sexual partners any given individual can have easy access to. There is also the not often discussed problem of what appears to be an ever-shrinking “traditional” (government-funded) public health workforce. Often considered the front line agents in the work to combat STIs, health departments in the U.S are experiencing significant reductions to their workforce as noted by the Association of State and Territorial Health officers (ASTHO), with even more reductions likely in the near future due to retirements and also due to further reduction in funding for these agencies.

All of these underscore the need for all individuals and entities, who are even remotely interested in promoting the health of the public, becoming engaged in the work to combat STIs. This would include not just publicly (government) funded agencies like health departments but also non-profits and for-profit organizations as well as individual clinicians and public health practitioners. Perhaps nothing illustrates better this need for cross-sector collaboration than the “new kid on the (STI) block”- Zika virus which has now become the organism most recently identified to be transmitted via the sexual route.

It is my hope that as you review the articles contained in this issue of the journal, you will not only learn the latest and the best about the STIs described here, but that you will also begin to identify ways you and your agency or group can join forces with all of us in Delaware who are in the trenches working to mitigate the impact of these diseases on the lives and well-being of our friends, families, co-workers and neighbors.

**Awele N. Maduka-Ezeh, MD, MPH**

*April 2016*

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# Zika virus—An Obscure Disease Goes “Viral”

| by Awele N. Maduka-Ezeh, MD, MPH

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**Z**ika virus is an arbovirus (virus spread by arthropods), that is a member of the flavivirus family, along with other viruses including Yellow Fever, West Nile, Dengue, Japanese encephalitis and Saint Louis encephalitis viruses. First isolated in 1947, it did not appear in the Americas until early 2014 when it was identified on Easter Island (Chile).

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By early 2015, an outbreak of the virus began in Brazil. As of March 31st, 2016, locally acquired cases of Zika virus had been reported from 33 countries and territories in the Americas. Previously thought to be a generally mild illness, the ongoing epidemic has highlighted serious complications from the infection that were previously unidentified or unreported. Information about the virus, the nature of the infection and the distribution of the disease is emerging on a continual basis. As more is learned, the Centers for Disease Control and Prevention (CDC) and state and local health departments will continue to release updated guidance to educate the public and health care providers on measures to take to prevent Zika virus transmission, as well as updated information about the health effects that result from infection with the virus.

Most Zika virus infections are asymptomatic. About one in five people infected with the virus develop the disease and symptoms are generally mild comprising any combination of fever, rash, joint pain, or conjunctivitis. Symptoms typically begin after an incubation period of a few days to a week. In most cases, symptoms resolve within a few days to a week.

Differential diagnoses for the characteristic symptoms of Zika are myriad and (given the relevant travel or exposure history) might include leptospirosis, malaria, rickettsia, group A streptococcus, rubella, measles, parvovirus, enterovirus, adenovirus, dengue fever, chikungunya (or other alpha viruses).

The current Zika epidemic has brought to light serious consequences of what was previously thought to be a benign disease. In addition to poor pregnancy outcomes (stillbirth, miscarriages) and microcephaly, there is also accumulating evidence that implicates the virus in a spectrum of neurologic syndromes in adult and adolescents including Guillaine-Barre syndrome and acute myelitis amongst others <sup>(1,2,3)</sup>. Long term consequences of Zika virus infection are yet to be determined

There is currently no vaccine to prevent, or antiviral to treat Zika virus although studies are ongoing to develop these. Since the only natural hosts for Zika appear to be primates, previous research around Zika

was limited to non-human primate models. Recently, two murine (mouse) models for Zika virus infection have been described <sup>(4,5)</sup>. These will likely open up the door for much progress towards the development of Zika therapeutics.

Patients with Zika should be managed symptomatically. Given the similarity to Dengue virus infection, aspirin and non-steroidal anti-inflammatory drugs (NSAIDs) should be avoided until dengue is ruled out in order to avoid potential hemorrhagic complications that might ensue if the patient has dengue.

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## Transmission

Transmission of Zika virus is primarily through the bite of infected *Aedes* mosquitos with the primary vector being *Aedes aegypti* (also known as the yellow fever mosquito). *Aedes aegypti* is also an important vector for Dengue virus and Chikungunya virus. Isolation of the virus in, or transmission by, other *Aedes* species in natural or laboratory settings has been described in the literature. Of particular interest is *Aedes albopictus* (Asian Tiger mosquito) <sup>(6)</sup>, given its relative abundance in the continental US including Delaware.

The sexual route of transmission for the Zika virus has been recently described <sup>(7)</sup> with several Zika virus infections in the current epidemic also being linked to sexual transmission. Most cases of sexual transmission of Zika were from an infected male to a female, however, male to male transmission of Zika has been described of late <sup>(9)</sup>. It is yet to be determined if Zika can be transmitted from a female to her sexual partners. It has also not been established which forms of sex (vaginal, anal or oral) pose the highest risk for sexual transmission of Zika virus.

A recent study demonstrated high concentrations of Zika virus in the testes of experimentally infected mice, with the concentration in the testes being higher than in any of the other tissues examined <sup>(4)</sup>, underscoring the importance of the sexual route of transmission. The length of persistence of the virus in semen is a subject of ongoing study by the CDC and others.

Mother to child transmission of Zika virus during pregnancy and/or child birth is a third mode of transmission. Zika infection during pregnancy has been shown to result in poor pregnancy outcomes including miscarriage, stillbirths, intrauterine fetal growth retardation. Particularly concerning are the severe neurologic consequences including microcephaly that are associated with Zika infection in pregnancy<sup>(1)</sup>. In the wake of the Zika virus outbreak, Brazil has seen an unprecedented rise in cases of microcephaly<sup>(8)</sup>. Studies have been published reporting the isolation of Zika virus from the neural tissues of stillbirths and from products of conception retrieved from women infected with Zika virus. It remains unclear during which trimester of pregnancy the risk of transmission is highest. Studies are also ongoing to determine the impact of infection at different stages of pregnancy and how frequently an infected mother will transmit the virus to her unborn child.

Transmission of Zika virus through the inadvertent transfusion of infected blood is yet another means by which the virus can spread.

As of March 31st, the continental U.S. had 312 travel-associated cases of Zika identified from 34 states, including three confirmed cases in Delaware. Apart from Puerto Rico, American Samoa and the US Virgin Islands where there is ongoing transmission, there have (as of March 31st) been no cases of mosquito-borne Zika virus infection in the U.S. Sexual transmission of Zika has been documented in 6 US states so far. No sexual transmission has been reported in Delaware as of March 31st.

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### Reporting Zika Virus Infection

Zika virus infection has been made a nationally notifiable disease. It is a reportable disease in Delaware. It is important to identify and report cases or suspected cases of Zika virus infection to local public health authorities both for the benefit of the individual patient and for the public's health. It is also critical to report pregnant women who have had potential exposures to Zika virus. Exposure of a pregnant woman would include travel to areas with ongoing Zika virus infection at any time during her pregnancy or 8 weeks prior to conception (6 weeks prior

to last menstrual period). Unprotected sex, during her pregnancy, with a man known to have Zika virus infection would also constitute exposure for a pregnant woman. Such individuals should be referred for laboratory testing (available at the Delaware public health lab for Delaware residents)

Most non-pregnant people do not have serious consequences from Zika virus infection. Nonetheless, it is important to refer individuals with relevant travel or exposure and consistent symptoms for laboratory testing. This referral will allow state and local public health authorities and mosquito control experts to apply measures to help protect the public's health.

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### Laboratory Testing

Testing for Zika virus is accomplished by real-time reverse transcriptase Polymerase Chain reaction (PCR) and by serology (IgM enzyme linked immunosorbent assays- ELISA). The results of this testing depends on time since infection with PCR having the best yield earlier in the course of illness (first one week). IgM ELISA is able to detect infection between 2-12 weeks after infection but is less reliable earlier on. Because of the significant cross reactivity between serologic tests for Zika and related flaviviruses, confirmatory testing for those that return positive on IgM ELISA is required. This is accomplished using Plaque Reduction Neutralization Testing (PRNT) which reliably differentiates Zika infection from primary infection due to dengue and other flaviviruses. It is important to note, however, that previous flavivirus infection or prior immunization against flaviviruses (yellow fever or Japanese encephalitis vaccination) may make PRNT results difficult to interpret.

As of the time of this publication, the Delaware Division of Public Health laboratory is performing PCR testing for Zika virus on serum and urine specimens and is expecting to add on Zika IgM ELISA within the next several weeks. PRNT is currently being done at the CDC laboratories.

Given the overlapping epidemiology and symptomatology of Zika, Dengue and Chikungunya viruses, it is important that individuals suspected of having Zika also be tested for Dengue and Chikungunya. The FDA

recently approved a triplex PCR that is able to test for these three viruses simultaneously and this is available at the Delaware public health laboratory.

Priority for testing is given to pregnant women. Thus, testing of non-pregnant individuals in Delaware will be limited to those who have symptoms consistent with Zika virus infection PLUS a history of travel to areas with ongoing transmission of Zika virus. Testing will be performed on pregnant women who have concerning exposures (consistent travel or unprotected sex with a male Zika case) regardless of whether or not the woman has symptoms. This includes women who traveled to affected areas within 8 weeks prior to becoming pregnant (Or within 6 weeks prior to their last menstrual period). It is important that such women are referred early as serologic tests are most reliable within 2-12 weeks following exposure. To arrange for laboratory testing in Delaware, health care providers should call 888-295-5156 or 302-744-4990 or email Reportdisease@state.de.us

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### Prevention

Because a lot is still unknown about the pathophysiology and persistence of Zika virus in various tissues and bodily fluids, the CDC recommends that women who desire to conceive be counselled to wait at least 8 weeks after exposure (or after symptoms first appear) prior to attempting to conceive. Men who have been diagnosed with Zika virus or who have consistent symptoms should be advised to wait at least 6 months after symptoms first appeared before having unprotected sex.

The primary means of preventing Zika virus infection is by mosquito avoidance including personal protective measures (such as use of insect repellants, mosquito screens and permethrin treated clothing) and reduction of mosquito breeding habitats around the home. It is also important to counsel pregnant women to avoid travel to areas with ongoing transmission if at all possible and to avoid unprotected sex with men who have traveled to such areas.

In addition, persons with confirmed Zika virus infection should practice mosquito

*(continued on page 13)*

# Special Bulletin — Zika

From the Delaware Division of Public Health

February 2016

## Take travel precautions to prevent Zika virus infection

Zika is a generally mild illness currently widespread in Central and South America and the Caribbean. Anyone who lives or travels in the impacted areas could be infected regardless of whether they show symptoms. Only one in five people infected with the disease develop symptoms. However, there have been reports of serious birth defects linked to the disease, which is spread by mosquitoes.

Those who recently traveled or plan to travel to areas where Zika transmission is ongoing, including, but not limited to, Brazil, Colombia, Venezuela, Barbados, the Dominican Republic, Haiti, Puerto Rico, Costa Rica, U.S. Virgin Islands, Jamaica, Mexico, Guatemala, El Salvador, Honduras, and Panama could be at risk. For the complete list of Caribbean, Central and South American, and African countries impacted, visit <http://wwwnc.cdc.gov/travel/notices>.

Because there is neither a vaccine nor antiviral medications available to prevent Zika virus infection, it is highly recommended for women that:

- If you are pregnant, postpone travel to the countries where Zika virus transmission is ongoing.
- If your male sexual partner has traveled to or lives in an area with active Zika virus transmission, condoms should be used for the duration of the pregnancy. Discuss your male partner's potential exposures and history of Zika-like illness with your doctor.
- If you are trying to become pregnant, talk to your doctor before you travel about your plans to become pregnant and the risk of Zika virus.
- If you are pregnant or may become pregnant and must travel to one of these areas, talk to your doctor first and strictly follow steps to prevent mosquito bites during your trip.
- If you are *not* pregnant, but your male partner lives in or has traveled to a country with Zika, consider using condoms.

### Zika Symptoms

Symptoms typically begin two to seven days after being bitten by an infected mosquito. The most common symptoms of Zika virus disease are:

- Fever
- Conjunctivitis (red eyes)
- Joint pain
- Rash

## Screening and Reporting Potential Illnesses

All women who traveled to an area with ongoing Zika virus transmission during pregnancy should be evaluated specifically for Zika virus infection and tested in accordance with the CDC's latest guidance. And, everyone should be screened for travel-related infectious diseases using the link below.

Zika, and many other mosquito-borne illnesses are considered "mandatory reports," meaning they must be reported to the Division of Public Health (DPH). To report a potential illness or for further information on reporting, call the DPH Office of Infectious Disease Epidemiology at 302-744-4990.

For further information and additional resources related to Zika, visit [www.dhss.delaware.gov/dhss/dph/zika.html](http://www.dhss.delaware.gov/dhss/dph/zika.html).

To screen patients for travel-related infectious diseases, health care providers should visit: <http://www.dhss.delaware.gov/dhss/dph/php/files/emergingandtravelrelatedinfidisease/screeningtool.pdf>

### Mosquito prevention strategies

- ☑ Wear long-sleeved shirts and long pants.
- ☑ Stay in places with air conditioning or that use window and door screens to keep mosquitoes outside.
- ☑ Use Environmental Protection Agency (EPA) registered insect repellents. All EPA-registered insect repellents are evaluated for effectiveness.
- ☑ If you have a baby or child:
  - Do not use insect repellent on babies younger than 2 months of age.
  - Dress your child in clothing that covers arms and legs, or cover crib, stroller, and baby carrier with mosquito netting.
  - Do not apply insect repellent onto a child's hands, eyes, mouth, and cut or irritated skin.
  - Adults: Spray insect repellent onto your hands and then apply to a child's face.
- ☑ Treat clothing and gear with permethrin or purchase permethrin-treated items.
- ☑ Sleep under a mosquito bed net if you are overseas or outside and not able to protect yourself from mosquitos.



DELAWARE HEALTH AND SOCIAL SERVICES  
Division of Public Health



# If you are pregnant or trying to become pregnant ...

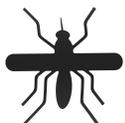
## Take precautions to prevent **Zika** virus infection

Zika is a generally mild illness currently widespread in **Central and South America and the Caribbean**. There have been reports of serious birth defects linked to the disease in other countries.

### Travel and transmission advisories



- If you are pregnant, postpone travel to the countries where Zika virus transmission is ongoing.
- If your male sexual partner has traveled to or lives in an area with active Zika virus transmission, condoms should be used for the duration of the pregnancy. Discuss your male partner's potential exposures and history of Zika-like illness with your doctor.
- If you are trying to become pregnant, talk to your doctor before you travel about your plans to become pregnant and the risk of Zika virus.
- If you are pregnant or may become pregnant and must travel to one of these areas, talk to your doctor first and strictly follow steps to prevent mosquito bites during your trip.
- If you are **not** pregnant, but your male partner lives in or has traveled to a country with Zika, consider using condoms.



### Preventing mosquito bites

- Use Environmental Protection Agency (EPA) registered insect repellents. All EPA-registered insect repellents are evaluated for effectiveness.
- Stay in places with air conditioning or that use window and door screens to keep mosquitoes outside.
- Sleep under a mosquito bed net if you are overseas or outside and not able to protect yourself from mosquitos.
- Treat clothing and gear with permethrin or purchase permethrin-treated items.
- Wear long-sleeved shirts and long pants.

**For more information, including a list of countries where Zika virus transmission is ongoing, visit:**  
[www.dhss.delaware.gov/dhss/dph/zika.html](http://www.dhss.delaware.gov/dhss/dph/zika.html)





*An Interview with*

**Alfred E. Bacon, III, MD**

*by Liz Healy*

**LH: Why did you decide to go into medicine? I understand your father was a physician as well, did that affect your decision at all?**

**AB:** Well yes, I think it did affect my decision significantly. He enjoyed what he did, and was rewarded for it on every level...I found it fit me from an early age. He was driven by medicine as an art and the enjoyment of it. For me, I had done some laboratory based research in college which made me more interested in infectious disease for example. So I think we had a similar view of things and that is what led me in that direction.

.....

**LH: Other than the research you took part in, was there anything else that led you to specialize in infectious disease?**

**AB:** Yes, I thought it was a really an intellectual field, it was stimulating and interesting, I thought I'd spend my days walking around the halls of the hospital pontificating about stuff... then HIV came along and we had to actually see really sick people. And infectious disease has changed some much. It's gone from being this sort of academic approach to patients, to part of the inpatient world where you have to contribute to the efficiency of medical care and the corporatization of medicine.

.....

**LH: One of the things we've perceived over time is that HIV has gone from being essentially a diagnosis that supports prognosis of death, to now being a chronic disease that is managed. Do you think it'll remain in that place? Do you think there's the potential for HIV to become drug resistant like gonorrhea has?**

**AB:** I do think it will remain in that place, and you're exactly right with what you said, it used to be that you had HIV, you died. And actually the meds we used were almost useless, in retrospect, monotherapy was not very helpful, and combination wasn't adequate.

I saw my first case of HIV in 1983, and from then until 1995 when the combination drugs came out, the most beneficial thing we could do would be to put someone with HIV disease on bactrim suppression and antiretrovirals and we could treat their infections when they got them. There were often bizarre presentations of infections.

HIV has so many sequelae down the chain of science; if it wasn't for HIV, we wouldn't have Hepatitis B, Hepatitis C treatments, and all these other agents for antineoplastic agents. In fact, and when HIV hit and all the science started going in that direction, it was really very impressive. A lot of money went into HIV research, really good money, going to good places, and they found the key to managing this disease. Keep in mind what HIV did to the US; look

what it did to sub-Saharan Africa. In Africa it was the middle income groups that were the entrepreneurs that traveled and they had HIV and brought it back to their villages and so many of the productive people were killed as a result and their economy is still suffering. But that's a global discussion.

**LH: What do you find public perception of STIs is like now? And how has that changed over time?**

**AB:** So we'll group a number of them together, we'll talk about STIs like syphilis, HSV, HIV disease... the public has become blasé about most of the STIs in my perception, and that's a reflection of the medical field also being blasé about STIs. I think we view them as quick, easy things to take care of, except for HIV disease, which now is easy to take care of, so there's a resurgence of syphilis we haven't seen in a while, within the HIV population. Part of that is we're seeing this swing- remember HIV went through an aggressive educational component in the gay male population, and then there was the IV drug abuse population, then the female population- so they all went through these phases...and then unprotected sex became okay at one point in time. In fact, there were even comments made by activists in California, saying... people think it's very treatable so they don't care about things like having unprotected sex now. Unprotected sex allows many things other than HIV to occur, and I think people got very blasé about it for a while. And now that HIV is treatable, I'm seeing patients for pre-exposure prophylaxis for HIV, which is a whole separate discussion which becomes almost political, about taking a pill, but keeping in mind it doesn't protect you from other diseases...the sooner you get into that preventive arena the better.

**LH: Are there any local trends you have seen with HIV in Delaware?**

**AB:** No, but there is a comment that has to be made about HIV in Delaware, and that is the absolute incredible dedication from the people who have worked on this from the get go, and who continue to work on it. It cannot be understated. Throughout the years some of

these professionals have totally embraced the management of these patients, in every facet of the population, from the IV drug abusers and different socioeconomic groups, they were unwavering; it is really to be admired. And they have maintained the same philosophy and structure and competence. They bring really good people in to work with these patients. I did leave that arena, but I'm thrilled to see people doing well there. I think the continued effort is phenomenal and very unique.

The thing about HIV in Delaware, the disappointing thing, is that I'm seeing the continued waves of noncompliant patients. What I'm also seeing is the sons and daughters of my patients I saw in the 80's and they're the same as their parents. There was a patient

**“I think we've seen HIV go from determining what is the bug, to how do you kill the bug, to how do we kill the bug better, to how do will kill the bug cheaper and better.”**

*— Alfred Bacon III*

I would bring to Jefferson with me in fact, to talk to second year medical students about HIV, and her daughter was also completely noncompliant. So I'm seeing the sons and daughters generationally with similarities. With any disease, not just HIV, the psychosocial factors translate into how patients do, and if they're going to follow management, whether it's HIV, or hepatitis C, or a brain abscess, and that plays a role in how they do. For any disease, a lot of your upbringing and how you are raised, and the support you have, and your nutrition all become manifested with age.

**LH: What advancements do you hope to see in medicine, and if I can tie that into HIV specifically, what advancements do you hope to see specifically with this disease?**

**AB:** I think we've seen HIV go from determining what is the bug, to how do you kill the bug, to how do we kill the bug better,

to how do will kill the bug cheaper and better. I would like to see the cost come down for treatment. Once these drugs get to generic form, think what that would do for so many people in the world. Seeing the cost come down for vaccination would be good. The thing we're seeing with HIV disease is we can control the disease, and now my patients get what everybody else gets, but they get it earlier. People age faster. So for example if you have cardiac disease, and your dad had a heart attack at 70, you're going to have yours at 60. Same for osteoarthritis, or dementia, it's happening earlier. So, that means ongoing inflammation driving this, so I think the best step might be to deal with the ongoing inflammatory issues, that promote early aging and promote comorbid disease, osteoarthritis, cardiac disease,

atherosclerosis, and I think that actually is a current HIV issue- where are we going to take the disease to see we can minimize everything else so you do lead a normal life.

What's really interesting is I had all of these patients in 1992, 1993, who were going to die. Their T counts were very low, 20,30, 40, and then new drugs came in, we got them to these patients. For example, I had a woman who was blind from CMV, who was going to die before, but is now normal. Some patient had so few T cells, they thought they were going to die, and watching them go from being prepared to die, to saying “I'm not going to die,” was really great. In 2000, things were getting better and better. T counts were going from 10 to 500. This is a reason they have to keep investing in science, and we want more money going to the NIH, because all the things discovered for HIV are applicable to so many other diseases. The scientific validation and use of other things shows that good science begets good science, and competing to find treatments, it's phenomenal and unique.



*Dr. Alfred Bacon III is an infectious disease specialist at Christiana Care Health System, and is affiliated with multiple hospitals in the area. He has been in practice for over 20 years and received his medical degree from Jefferson Medical College.*



# Delaware Programs Combat Teen STI Rates with Education, Resources | *by Christopher C. Moore, BA, LSSGB*

**D**elaware teens are at higher risk of acquiring sexually transmitted infections (STI) because of limited access to preventive and regular health care services include STI testing.<sup>1</sup> This poses a unique challenge in a state with three distinct geographic landscapes – urban, suburban and rural, all within less than 2,000 square miles. While there is some access to these services, it varies from county to county, and often town to town. Delaware Health Tracker reports one in four sexually active teens contracts a sexually transmitted disease (STD) every year. Additionally, sexual activity may lead to unplanned pregnancies, an outcome which often comes with physical, emotional, and financial hardships.

## Problem

According to the 2013 Delaware's Youth Risk Behavior Survey – which monitors six types of health-risk behaviors that contribute to the leading causes of death and disability among youth and adults, including sexual behaviors – 49% of Delaware teens have had sexual intercourse; of that 49%, 6% had sexual intercourse for the first time before age 13 years; and, 15% had sexual intercourse with four or more persons during their life.

In addition:

- 34% had sexual intercourse with at least one person during the 3 months before the survey
- 37% did not use a condom during last sexual intercourse
- 12% did not use any method to prevent pregnancy during last sexual intercourse
- 15% were never taught in school about AIDS or HIV infection<sup>2</sup>

These statistics, while jarring, are a snapshot of teen sexual health across the country. With the almost-constant advancements in smart phone technology,

one has to wonder what role these changes play in influencing risky sexual behaviors among the teen population. These advancements provide instant access to social media sites like Facebook, Instagram and Snapchat, where photo-sharing has become the norm. They also have created alarmingly easy-access to sexually explicit media content. Even more thought-provoking is the impact of dating apps like Tinder or Grindr, which provide GPS-based grids of users in one's local area. How these apps are utilized varies by user; however, it is safe to assume these platforms have made it exponentially easier to find sexual partners. For example, Tinder has a platform just for teenagers. Grindr on the other hand, requires a birthday to be entered; however, there are a number of instances where an underage teen has misrepresented their age to gain access.

## Solution

Fortunately, there is a cadre of state-wide programs which aid in bridging the health access gap, providing education and resources for Delaware teens. The Alliance for Adolescent Pregnancy Prevention (AAPP) works to reduce the number of teenagers who are sexually active, become pregnant and become teen parents. AAPP coordinates, collaborates and executes consistent, message-driven educational programs statewide through three unique programs: Wise Guys, for males, aged 13-18; Be Proud! Be Responsible! for teens, aged 13-18; and, Making Proud Choices! for teens aged 11-13. The latter two are both identified as evidence-based programs by the Centers for Disease Control. AAPP programming is implemented in school and community settings and groups are facilitated by trained educators who are authorized to deliver these critically important health messages.

Another vital resource for Delaware teens are the School-Based Health Centers (SBHCs), which are located in 29 public and vocational high schools across the state. The SBHCs are operated by a multi-disciplinary team of health

professionals who use a holistic approach to address a broad range of health and health-related needs of students. This includes testing and treatment of STIs in some sites. These SBHCs may be funded by state, federal and/or third-party billing funds; through a community partnership; through grant sources; but they also require the support of the school through in-kind or actual dollars.

Two community-based resources which serve Delaware teens are Planned Parenthood (PPDE) and the Adolescent Resource Center (ARC). With a combined 100 years of service, both provide essential sexual health services for adolescents. Planned Parenthood of Delaware has been providing high-quality reproductive health-care and sexual health information to the citizens of Delaware. Planned Parenthood serves the entire state, with three offices in Wilmington, Newark and Dover. The majority of patients are women between the ages of 16 and 30. In Fiscal Year 2014, as with most years, Planned Parenthood's target population was individuals at or below 250% of the federal poverty level, and the organization's medical centers served approximately 11,000 patients. No one is turned away for lack of insurance. In addition, PPDE's Sexuality Education Training Institute (SETI) is a national award-winning team of masters-level experts in youth and adult education as well as professional training. SETI provides youth education to approximately 4,000 individuals per year with a focus on evidence-based programs, adult and parent education, professional training and technical assistance, and individual consultation services. ARC (Adolescent Resource Center) is a comprehensive counseling, educational and medical service program for youth, to help reduce risk-taking behaviors, especially related to sexual health. The ARC program helps teenagers and young adults create and sustain healthy, responsible attitudes, behaviors, and choices about their sexuality. Through partnerships with local schools and districts, ARC educators visit schools with students in 5th through 12th grade to teach age-appropriate information related to puberty and sexual health. ARC educators work closely with schools and teachers to tailor lesson plans. ARC adheres to curriculum standards set by the Delaware Department of Education for family life education. Additionally, this program provides workshops for parents in schools and community centers with the goal of helping adults communicate effectively with their children on topics related to human sexuality.

With the challenge to address sexual health issues as critical as ever in Delaware, these resources continue to be a go-to for clinicians and anyone working with teens. They serve as safe, reliable access points for Delaware to receive quality education and medical services, both of which are critical during this important period of adolescents' development.

1 Retrieved from: <http://www.delawarehealthtracker.com/modules.php?op=modload&name=NS-Indicator&file=indicator&iid=11301565>

2 Retrieved from: [http://www.cdc.gov/HealthyYouth/yrbs/pdf/hiv/de\\_hiv\\_combo.pdf](http://www.cdc.gov/HealthyYouth/yrbs/pdf/hiv/de_hiv_combo.pdf)



*Christopher C. Moore, BA, LSSGB, is the Senior Program Manager, Community Health, for Christiana Care Health System's Department of Family and Community Medicine. Mr. Moore has oversight of staff, programming and research-related activities for a variety of grant-funded initiatives which aim to improve the health of the community. These include the Alliance for Adolescent Pregnancy Prevention, Camp FRESH and Christiana Care's Health Ambassador Program. In addition, he is part of the senior leadership team for the 15 Christiana Care School-Based Health Centers. Mr. Moore is a proud member of Delaware's sexual health education community, often pairing with community colleagues to provide trainings and professional development sessions on topics ranging from accessing reproductive health services, to understanding the impact of sexually explicit media.*

avoidance measures for the first week of illness. This prevents movement of Zika into the local mosquito population and thus prevents transmission of the infection to others.

## Zika Pregnancy Registry

To understand more about Zika virus infection, CDC established the U.S. Zika Pregnancy Registry and is collaborating with state, tribal, local, and territorial health departments (Including Delaware's DPH) to collect information about Zika virus infection during pregnancy and about congenital Zika virus infection. The data collected through this registry will be used to update recommendations for clinical care, to plan for services for pregnant women and families affected by Zika virus, and to improve prevention of Zika virus infection during pregnancy.

Please contact the Division of Public Health (Office of infectious disease epidemiology) to enroll patients in the Zika pregnancy registry, to report cases or to arrange for laboratory testing by calling 888-295-5156 or 302-744-4990 or emailing [Reportdisease@state.de.us](mailto:Reportdisease@state.de.us)

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*Awele N. Maduka-Ezeh, MD, MPH, is the Medical Director for the Delaware Division of Public Health where she also serves in the roles of medical epidemiologist and co-director for the public health laboratory. She obtained her medical degree from the University of Ibadan and completed a residency in internal medicine at the Albert Einstein Medical Center in Philadelphia. Dr. Maduka completed a fellowship in infectious diseases at the Mayo Clinic in Rochester, Minnesota. Dr. Maduka holds a Master of Public Health degree from Harvard University, with a focus on international health. She is currently enrolled in a PhD program in Disaster Science and Management at the University of Delaware where she is focusing on Health system leadership during response to pandemics and bioterrorism events. Doctor Maduka is board certified in Internal Medicine and Infectious Diseases. She is credentialed as an HIV expert by the American Association of HIV medicine.*

# The DPH Bulletin

From the Delaware Division of Public Health

February 2016

## What you need to know about the Zika virus

The Zika virus outbreak in several countries outside the U.S. was declared a public health emergency on Feb. 1 by the World Health Organization. Zika is generally a mild illness. Only one in five people infected with the disease develop symptoms. However, there have been reports of serious birth defects linked to the disease, which is spread by mosquitoes.

Anyone who lives or travels in the impacted areas (Central and South Americas, the Caribbean, and Africa) could be at risk for infection. Symptoms of Zika infection include fever, rash, joint pain, and red eyes.

According to the Centers for Disease Control and Prevention (CDC), the Zika virus is transmitted by the *Aedes aegypti* mosquito and possibly the *Aedes albopictus* (the Asian tiger mosquito, found in Delaware).

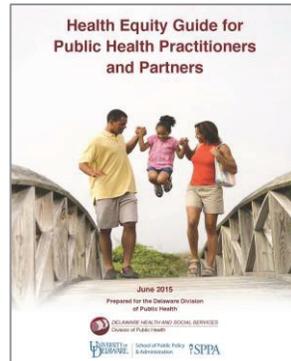


To prevent infection, avoid mosquito bites and follow CDC travel alerts. Women who are pregnant are advised to postpone travel to the countries where Zika virus transmission is ongoing. Male partners of pregnant women who traveled to a country with Zika should use condoms during the pregnancy.

For more information, visit [www.dhss.delaware.gov/dhss/dph/zika.html](http://www.dhss.delaware.gov/dhss/dph/zika.html) and [www.cdc.gov/](http://www.cdc.gov/).

## SHIP annual report available

Healthy lifestyles and access to mental health are addressed in the *Delaware State Health Improvement Plan (SHIP) Annual Report, 2015*, released by the Delaware Public Health Institute. The SHIP will be revised every three years to address the most pressing public health issues in an effective, organized, and collaborative way. To view the SHIP annual report, visit [www.delawarephi.org](http://www.delawarephi.org).



## Diminish Delaware's health inequities with informative Health Equity Guide

Poverty, homelessness, hunger, crime, teenage pregnancy, discrimination, and dropping out of school can lead to elevated rates of disease, disability, injury,

and premature death among certain populations. To help Delawareans understand what our health inequities are, and how to reduce them, the Division of Public Health (DPH), the University of Delaware's School of Public Policy & Administration, and other partners created the *Health Equity Guide for Public Health Practitioners and Partners*.

"Everyone has the right to attain their optimal health," said DPH Director Dr. Karyl T. Rattay. "It is unacceptable that in certain cases we may be able to predict how long someone will live based upon their ZIP code or income level."

Dr. Rattay said all sectors have a role to play in reducing health inequities. The health equity guide can help schools, workplaces, businesses, places of worship, and health care settings adopt policies that improve upstream conditions for better health.

The guide is available at this DPH link: [www.dhss.delaware.gov/dhss/dph/mh/healthequityguide.html](http://www.dhss.delaware.gov/dhss/dph/mh/healthequityguide.html). For print copies, call 302-744-4879.



Launching the *Health Equity Guide for Public Health Practitioners and Partners* are (from left) Delaware Health and Social Services Secretary Rita Landgraf, Chief of DPH's Community Health Services Cassandra Codes-Johnson, Erin Knight of the University of Delaware, DPH Director Dr. Karyl Rattay, St. Patrick's Center Executive Director Joe Hickey, and Senator Margaret Rose Henry. Photo by Donna Sharp.

**There is a once-a-day pill that may help us eliminate HIV/AIDS. It's called PrEP.**

**All you need to know at  
[www.DelawarePrEP.org](http://www.DelawarePrEP.org)**



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The Delaware PrEP Education initiative is a program of the Delaware HIV Consortium with grant funding provided by Gilead Sciences.

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The Ammon Center, Christiana Hospital  
Teleconference at Gateway Conference Center, Wilmington Hospital
- 9 am - 3 pm **Delaware PrEP Summit**  
LIVE! Gateway Conference Center, Wilmington Hospital  
Teleconference to the Ammon Center, Christiana Hospital

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*a collaborative effort of*



# A Model of Comprehensive HIV Care: Christiana Care HIV Program

by Arlene Bincsik, RN, MS, CCRC, ACRN, Deborah Kahal MD, MPH, Susan Szabo, MD

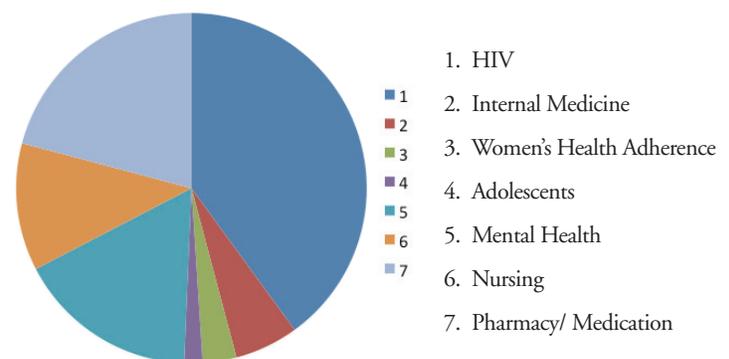
Delaware is the second smallest state in the U.S in terms of geographic size yet continues to rank amongst the top ten states nationwide for rates of HIV infection and other sexually transmitted infections (STIs). As of January 31, 2016, the Delaware Division of Public Health (DDPH) reported that a total of 3,462 individuals are living with HIV/AIDS in Delaware. African Americans are disproportionately affected by HIV/AIDS in Delaware. In spite of comprising 22% of the state's population, African Americans represented 65% of all statewide HIV cases in 2015. 1 in every 264 Delawareans is known to be infected with HIV with individuals between the ages of 20 and 39 accounting for over 50% of HIV infections statewide (DDPH 2015 HIV/AIDS Epidemiology Data). Other sexually transmitted infections, namely syphilis, genital and extra-genital gonorrhea and chlamydia, are increasingly pervasive throughout the state. In 2013, Delaware ranked 6th amongst all 50 states for rates of both gonorrheal and chlamydial infections and 12th for rates of primary and secondary syphilis (CDC; Delaware-2015 State Health Profile).

Initially conceived in October of 1989, The Christiana Care Health System (CCHS) HIV Program today serves as the major provider of HIV medical services throughout the state of Delaware. Since the inception of the HIV program, we have grown to include clinical sites in each of the three counties of Delaware. These sites are integrated into those communities with the highest rates of HIV infection, and represent collaborations with the DDPH, Beautiful Gate Outreach Center- a Wilmington-based community program serving those with HIV/AIDS within the Bethel AME Church, Brandywine Counseling and Community Services – a non-for-profit community-based organization serving individuals and families affected by addiction, mental health issues and HIV/AIDS, and Westside Health - a federally qualified health center with multiple statewide locations. These partnerships allow us to conduct outreach, provide direct linkage into care, and ultimately to form meaningful, longitudinal relationships with some of the hardest to reach populations of people living with HIV/AIDS.

The HIV Program provides comprehensive medical care to a diverse patient population that is largely medically underserved and marginalized. In 2015 alone, the combined sites of the HIV Program provided medical care and services to 1,667 unique individuals living with HIV/AIDS. Over a third of our patients have annual incomes that fall below the federal poverty level while 40% are enrolled in Delaware Medicaid. People of color comprise 71% of our patient population, 6% are Hispanic, and exceeding national statistics. 34% of our patients are female. One in every five patients has a history of injection drug use, 40% of active patients have concomitant mental health diagnoses, and we estimate that 25% of patients have a current alcohol or substance use disorder.

HIV Program Demographic Composition	
Males 66%	Females 34%
African American 65%	Hispanic 6%
White 30%	MSM 34%
IDU 20%	Heterosexual 60%
AIDS Defined 63%	

Often, the HIV Program serves as the only point of contact between patients and the medical system. In a recent patient satisfaction survey, 76% of respondents indicated that our program was their sole source of medical care. As such, the HIV Program actively addresses many primary care issues, ranging from age-appropriate cancer screenings to immunizations to healthy lifestyle evaluation and monitoring to screening for substance abuse and mental health issues. The HIV Program acts as a holistic medical model of care and provides a wide array of services including HIV specialty care, obstetric and gynecologic specialty care, evaluation and treatment of viral hepatitis, renal disease, sexually transmitted infections, mental healthcare, adherence assessment and monitoring, comprehensive psychosocial assessments, substance abuse referrals, office-based opioid treatment with Suboxone, and rapid on-site HIV testing. With the benefit of access to a full array of diagnostic and imaging services, our largest site in downtown Wilmington is able to serve as a “one-stop shop” for our patients’ medical and psychological needs.



The HIV Program is comprised of a multi-disciplinary team which, in addition to our physician staff, includes pharmacists, nurse practitioners, primary care nurses, licensed clinical social workers (LCSW's), medical social workers, phlebotomists, and clerical support staff. Each individual has a unique and essential role to play in supporting the development of comprehensive, individualized care plans for each of our patients.

Primary care nurses hold an absolutely pivotal role in the HIV Program, functioning as patient navigators, coordinating patient follow-up and referral care, addressing patient questions, and serving as one of many important sources of patient counseling and education. Nurses actively engage in ensuring that standards of medical care and monitoring are met with every patient encounter working in close collaboration with physicians during and after each patient encounter.

Pharmacists are responsible for overseeing a Medication Adherence Program (MAP), which was developed in response to the challenges of initiating and maintaining patients on medication. Patients are referred to the MAP when antiretroviral therapy (ART) is initiated, changed, or at any time when the staff identifies a problem with adherence. The pharmacy team evaluates medication readiness and addresses potential barriers to adherence prior to the initiation of therapy. The pharmacist works with each patient to develop a mutually acceptable, individualized treatment

plan and assists in ongoing monitoring of adherence, efficacy, side effects and drug-drug interactions. Along with other team members, the pharmacists are trained in principles of the chronic care model and assist patients by incorporating self-management goals into this process.

The HIV Program LCSW's provide essential integrated mental health services. Patients who are identified as potentially having a co-occurring mental health diagnosis are referred to the LCSW's for further evaluation, coordination of care with a local psychiatrist, and ongoing counseling. An innovative aspect of our mental health program is the use of telepsychiatry to provide support and services to HIV Program patients who access care in our Smyrna and Georgetown satellite sites.

The HIV Program social workers are responsible for conducting a comprehensive baseline psychosocial and financial evaluation on every new patient. Assessments include obtainment of extensive demographic information such as immigration and housing status, language preference, education and health literacy, support systems, criminal justice issues, access to transportation, as well as determination of insurance status and/or eligibility for Ryan White services, mental health and substance abuse issues, and identification of barriers to retention in care. The social workers, much like our nurses and pharmacists, provide counseling and education related to HIV infection, secondary prevention, and available support services.

The Patient Advisory Committee of the HIV Program offers valuable and insightful input into program development. In response to feedback from the Patient Advisory Committee, new patients are scheduled into separate "New Patient" sessions that provide additional time for baseline mental health and psychosocial assessments, complete history and physical exam, medication readiness assessment, and financial evaluation. New patients typically first meet with a primary care nurse and a clinic-based social worker. During this visit, baseline assessments enable social work to help patients enroll in appropriate health care insurance. It is also during this first encounter that baseline laboratory work is collected – including screening for sexually transmitted infections such as syphilis, hepatitis A, B, C, and gonorrhea and chlamydia.

Standards of care for all program sites are established and updated on a regular basis in accordance with the most current Centers for Disease Control and Prevention (CDC), Health Resources and Services Administration (HRSA), and Department of Health and Human Services (HHS) guidelines. All components of HIV management are provided on-site or via referral. Patients are scheduled for follow-up visits based upon disease and psychosocial status in keeping with HIV Program standards of care. Care plans are individualized based upon these criteria and are established in collaboration with each patient. HIV Program sites are evaluated on a regular basis for adherence to standards of care as part of our comprehensive performance improvement activities.

The HIV Program standards of care include frequent evaluation for sexually transmitted infections (STIs) in keeping with above guidelines and in response to the increased incidence of syphilis within the Delaware and tri-state region. Clinical sites perform sexually transmitted infection testing as often as every 3 months for those at highest risk of STI acquisition. Syphilis testing is performed at least annually. All women are tested for gonorrhea, chlamydia, and trichomonas during routine pelvic examinations while asymptomatic male patients are tested for gonorrhea and chlamydia annually. Patients undergo targeted extragenital gonorrhea and chlamydia testing based upon their individual histories. At-risk patients, including those on dialysis, men who have sex with men and persons who use intravenous drugs, are screened for hepatitis C at least annually. All patients receive targeted risk reduction counseling at every clinic visit.

HIV Program staff conducts patient rounds following each clinic session. Patient charts, along with all associated laboratory, imaging, and procedural results, are reviewed during rounds. In this manner, abnormal results requiring intervention are identified and addressed quickly. Nurse practitioners, pharmacists, primary care nurses

and medical social workers all participate in patient rounds, allowing the staff to address patient related problems in a uniform and holistic fashion. Physicians are present during every chart review to provide staff with education, real-time feedback, and additional insight into specific scenarios. This direct physician involvement provides excellent opportunities for the exchange of information and, in an informal fashion, ongoing staff education.

The HIV Program provides comprehensive, individualized client-centered education to all active patients. Patients are encouraged to actively participate in treatment decisions, and to involve family members and others who comprise their support system. All patients receive ongoing education on HIV transmission, HIV symptom management, medication adherence and side effect management, available community services and clinical trial information.

As a Ryan White grantee, the HIV Program has a mature and robust performance improvement program and monitors performance in 25 clinical indicators. For instance, adherence to clinical visits is 85%. 94% of active patients are on ART with 84% of these patients with undetectable HIV RNA levels. Overall retention in care is 97%, which compares well to a national rate of 51% according to the HIV Treatment Cascade (MMWR 2011;60(47):1618-1623).

The HIV Program continues to mature, expand, and transform in accordance with the times and often rapid-fire medical advances within the world of HIV and infectious diseases. Within the HIV Program, increasing focus is being placed upon rapid linkage to HIV specialty care from the time of HIV diagnosis and HIV treatment as prevention [of HIV transmission]. As part of our mission to prevent incident HIV infections, all sites of the HIV Program now offer evaluation and management of individuals for pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis (PEP). The HIV Program and several key community organizations are partnering to expand programmatic ability to manage patients on PrEP or PEP AND to train interested, front-line primary care providers to have the skill set necessary to provide this care within their own clinical practices. Similarly, with new advances in hepatitis C therapeutics, including the development of highly efficacious direct acting antiretrovirals (DAAs), we have expanded our clinical services to be able to evaluate, treat and manage those with hepatitis C who are not also infected with HIV.

As medical science rapidly advances and the reality of HIV and other infectious diseases remain looming, the HIV Program aims to provide the most up-to-date, evidence-based, comprehensive care to our patients. We strive to not only be a comprehensive medical program but to be identified by those we serve as a true medical and patient home. Through our evolving multi-disciplinary, corroborative team approach, patient-centered care, and esprit-de-corps, the HIV Program upholds the highest standards of care for patients and staff alike, and ensures that our patients return time and time again.



*Arlene Bincsik, RN, MS, CCRC, ACRN, is a graduate of the University of Delaware. She has been involved in the care and treatment of patients with HIV/AIDS since 1986. Ms. Bincsik is the current administrative director of the Christiana Care HIV Program.*



*Deborah Kahal M.D., M.P.H. is an attending physician within the HIV Community Program at Wilmington Annex where she cares for patients with HIV, hepatitis C and evaluates patients for pre-exposure prophylaxis (PrEP).*

*Prior to joining CCHS, Dr. Kahal completed her fellowship in Infectious Diseases at the University of Pennsylvania and her residency in Internal Medicine at the University of Washington.*



*Susan Szabo, MD is the Medical Director of the HIV Program at Christiana Care Health System. Since 1993, she has been responsible for coordinating and overseeing the care of patients with HIV infection.*



# VIRAL HEPATITIS C AND ITS DISTRIBUTION IN DELAWARE

by *Nhiem Luong, MD, DrPH; Martin Luta, MD; Cathy Mosley, BSN; Hildick-Smith Jon*

**W**ith an estimated three million people living with hepatitis C virus infection (HCV), HCV infections are the most common blood-borne infections in the United States<sup>1</sup>. Recent state surveillance reports for the period of 2006-2012 showed a nationwide increase in the number of reported cases of acute HCV infection, with the largest increases occurring in the Mississippi River basin, especially among states in central Appalachia<sup>2</sup>.

In addition, an emerging epidemic of HCV infection among persons who inject drugs (PWIDs) has increased sharply in several areas throughout the United States, with most newly diagnosed HCV cases associated with injection drug use<sup>3</sup> and many of the persons living with HCV unaware of their infection. As a result, these individuals do not receive preventive services and appropriate treatment<sup>1</sup>. Although Delaware had more than 3,500 persons living with HIV (human immunodeficiency virus) in 2015, and around 2,750 PWIDs in 2013<sup>4,5</sup>, data on the burden of HCV infection in Delaware are still unknown. To better understand the status of HCV infection in Delaware, we aim at (i) establishing the prevalence of HCV infection in Delaware; (ii) identifying accessibility of Delawareans to HCV laboratory testing and diagnosis; (iii) determining characteristics of individuals who have been infected with HCV in Delaware.

## METHODS

Surveillance data for HCV infection from the Delaware Electronic Report Surveillance System (DERSS) for the period from January 1, 2016 through March 31, 2016 were examined. We conducted a retrospective review of surveillance reports on HCV infection reported by hospitals and laboratories in Delaware

to DERSS. Data on the patients' demographics and laboratory testing results were reviewed. During that time period, 789 suspected cases of HCV were abstracted from the DERSS and included in our analysis. The patients were classified based upon the Council of State and Territorial Epidemiologists (CSTE) case definition for HCV infection<sup>6</sup>. Due to a small sample of cases with acute HCV, and to increase data validity, analyses for both groups (acute and chronic HCV infections) were performed together. Calculation of HCV prevalence was based on the number of HCV cases diagnosed as either probable or confirmed cases according to the CSTE case definition. Descriptive statistics such as frequencies, means, medians, and cross-tabulation were used for patient characteristics. Data analysis were performed using the Stata© software program (version 13; Stata Corp., College Station, TX). Probability values less than 0.05 (two tailed) were considered statistically significant.

## RESULTS

During this three month period, we identified eight (1.0%) persons suspected for acute HCV and 781 (99.0%) for chronic HCV infection, respectively. Baseline characteristics of these 789 persons

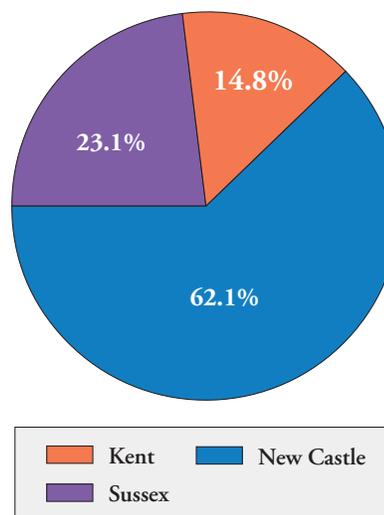
are presented in Table 1. Of these 789 persons, 470 (59.6%) were HCV-antibody positive, 257 (32.6%) were not a case, 214 (27.1%) were under investigation, and seven (0.9%) were classified as “other” (defined as either missing or did not have enough information for HCV diagnosis). Furthermore, 186 (23.6%) were identified as confirmed and 125 (15.8%) as probable cases, for an overall HCV prevalence of 39.4%.

Of the 470 persons positive for HCV-antibody, 236 (50.2%) had HCV RNA test results for viral HCV. Table 2 represents the characteristics of current HCV infected persons. Of the 311 patients infected with HCV (both acute and chronic), either diagnosed as confirmed or probable cases, the mean age was 39.2 years old (range from 1-85 years). Males accounted for 55.3% (n=172) of all cases. A larger percentage of infected persons was in the age group of 21-40 years (57.9%, n=180), and a majority of infected cases were among White (74.0%, n=230) compared with only 15.4% and 1.6% in Black and Asian/American Indian, respectively. More than 62% (n=193) of infected cases were located in New Castle County (Figure 1), and a large number of cases were in the state’s larger cities such as Wilmington, New Castle, Smyrna, Newark, Millsboro, Georgetown, and Dover, with higher concentration in certain zip codes (Table 2).

## DISCUSSION

HCV infection is very common in the United States. Preliminary findings from our surveillance data on HCV infection showed the overall HCV prevalence of 39.4% among Delawareans who visited hospitals and some clinics in Delaware for hepatitis symptoms. In 2015, with the population of 941,634 people in Delaware and 311 persons diagnosed with either probable or confirmed cases of viral HCV infection, the prevalence of viral HCV infection in Delaware was 33 persons per 100,000 population. Similarly, with 470 persons positive on HCV-antibody testing, the number of Delawareans who have ever been infected with HCV in Delaware were estimated at 50 persons per 100,000 population. It is important to note that our data were primarily from DERSS surveillance data for HCV infection generated from hospitals and some laboratories. So far, we received very few reports from out-patient clinics in the state, suggesting that our prevalence as calculated actually underestimates the actual number of HCV infections. Taken together, these indicators strongly suggest that viral hepatitis C infection is a real public health problem in Delaware. Given that with current treatment regimens HCV

**Figure 1: HCV Infected Cases by County**



infection is curable and treatment is of short duration, it is important to identify HCV-infected persons and link them to care. The high prevalence of HCV infection among Delaware’s population indicates a need for additional support and funding for HCV control efforts.

Hepatitis C infection is a major cause of chronic liver disease and hepatocellular carcinoma and the leading indication for liver transplantation in the United States. We observed that only a small number of acute HCV infected patients visited healthcare providers in Delaware (only 1.0% of the total cases). A majority of our patients were missed in their acute phase of infection, and did not know that they had the disease, perhaps because HCV infection is often asymptomatic. However, it is important that a patient infected with HCV knows his/her disease status since HCV, if left without appropriate treatment, may result in severe complications such as liver cirrhosis and advanced liver disease with liver failure as well as liver cancer. In Delaware, the Division of public health is focusing on HCV testing and screening protocols to include HCV testing among high risk individuals. Results from our study showed that around 62% of infected cases were in New Castle county, where almost 60% of the entire state population live, and a large number of cases were clustered in major cities, with certain zip codes (Table 2). These urban areas should be targeted for the HCV campaign and HCV screening programs.

The current Centers for Disease Control and Prevention guidelines on

**Table 1: Baseline Characteristics of Suspected Cases of Viral HCV Infections**

Case Identified	Acute HCV (N,%)	Chronic HCV (N,%)	Total
Confirmed	6 (75)	180 (23.0)	186 (23.6)
Probable	1 (12.5)	124 (15.9)	125 (15.8)
Not a case	0	257 (32.9)	257 (32.6)
Under investigation	1 (12.5)	213 (27.2)	214 (27.1)
Others*	0	7 (0.9)	7 (0.9)
Total	8	781	789

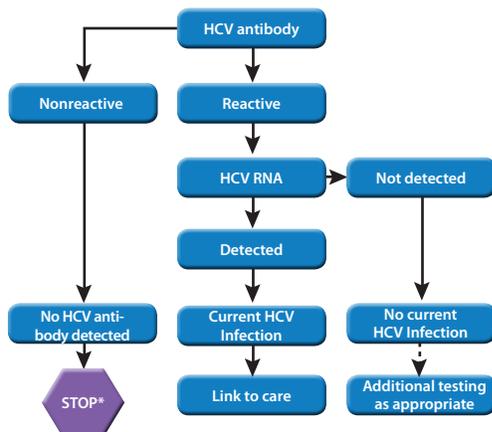
\*: missing or did not have enough information for HCV diagnosis

**Table 2: Characteristics of Patients Infected with Viral HCV**

Characteristics	Number (%) [N=311]
<b>Age, years</b> (range: 1-85; mean 39.2)	
1-20	11 (3.5)
21-40	180 (57.9)
41-60	84 (27.0)
> 60	36 (11.6)
<b>Sex (n=311)</b>	
Male	172 (55.3)
Female	139 (44.7)
<b>Ethnicity/Race (n=311)</b>	
White	230 (74.0)
Black	48 (15.4)
Other (Asian, American Indian)	5 (1.6)
Unknown	28 (9.0)
<b>County, city (zip code*)</b>	
<b>New Castle (n=193)</b>	
Wilmington (19801,19802,19805)	80 (41.5)
Smyrna (19977)	31 (16.0)
Newark (19702,1911,19713)	27 (13.9)
New Castle (19720)	30 (15.5)
All other cities	25 (13.1)
<b>Kent (n=46)</b>	
Dover (19901,19904)	17 (37.0)
Felton (19943)	6 (13.0)
Harrington (19952)	5 (10.0)
Magnolia (19962)	6 (13.0)
All other cities	12 (26.0)
<b>Sussex (n=72)</b>	
Georgetown (19947)	19 (26.4)
Lauren (19956)	7 (9.7)
Lewes (19958)	5 (6.9)
Millsboro (19966)	15 (20.9)
Seaford (19973)	7 (9.7)
All other cities	19 (26.4)

\*: only selected zip codes with high number of cases

**Figure 2: CDC Recommended Testing Sequence for Identifying Current Hepatitis C Virus (HCV) Infection**



Source: <http://www.hcvguidelines.org>

testing for HCV infection (Figure 2) recommend that persons who are positive for HCV-antibody should be followed up with a test for HCV RNA to detect whether or not the patient is a “current HCV infection” or “no current HCV infection”, then be followed up with additional testing as appropriate or linked to care. Of the 470 persons reactive to HCV-antibody in our study, only 236 (50.2%) had HCV RNA test results available, suggesting that among those seeking care for hepatic issues, almost one half did not have adequate access to testing or follow-up for HCV infection. Furthermore, almost 58% of our cases were in the age group of 21–40 years old, they are sexually active. Detecting their disease status and linking them to care and treatment are necessary in order to limit the disease transmission and avoid or reduce HCV-related morbidity, mortality, and expenses that may result from HCV infection.

There were several limitations in our study. First, our data were from the surveillance data for HCV infection, patients were more likely to be sick with HCV infection. As its results, a number of infected cases might be higher within this cohort of patients, leading to a higher prevalence in our sample. To increase our validity, the prevalence per 100,000 population was calculated. Second, a small sample size for acute HCV made it difficult to determine the patient characteristics, particularly for acute HCV infection. Third, data on risk behaviors toward HCV infection were not collected through our surveillance system, it is hard to identify specific high risk population groups in Delaware. Although, extrapolating from national data, it is believed that high risk populations in Delaware (e.g., people living with HIV, persons who inject drugs, “baby-boomers,” et al) contribute a large portion of HCV infected cases. Percutaneous exposure to contaminated blood is the most efficient mode of transmission for HCV. Recent reports from Delaware indicated that there were at least 3,500 people living with HIV in Delaware in 2015, and around 2,750 people in Delaware sought for heroin treatment in 2013<sup>4, 5</sup>. Injecting drug use is a risk factor for both HIV and HCV infection. Thus, integrated health care services are needed to treat substance abuse and blood borne infections deriving from illicit drug use and high risk behaviors.

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Dr. Nhiem Luong, the Principal Investigator, currently holds the titles of Head of the Office of Infectious Disease Epidemiology for the State of Delaware, and Epidemiologist III/Deputy State Epidemiologist. He has published and co-authored numerous publications and manuscripts, and has delivered presentations on a variety of topics. Dr. Luong received an MD from Thai Binh Medical Center in Vietnam, a DrPH from the University of Texas Health Science Center, an MPH in public health and promotion from the University of the Philippines, and an MPH in Maternal and Child Health from the University of North Carolina at Chapel Hill.

*Delaware Academy of Medicine / Delaware Public Health Association*



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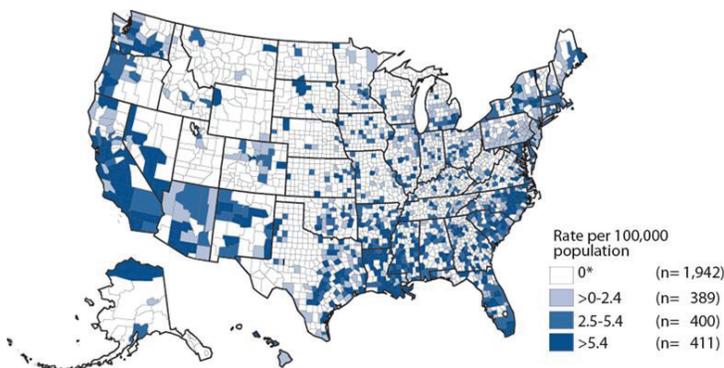


# Syphilis

by Stephen C. Eppes, MD

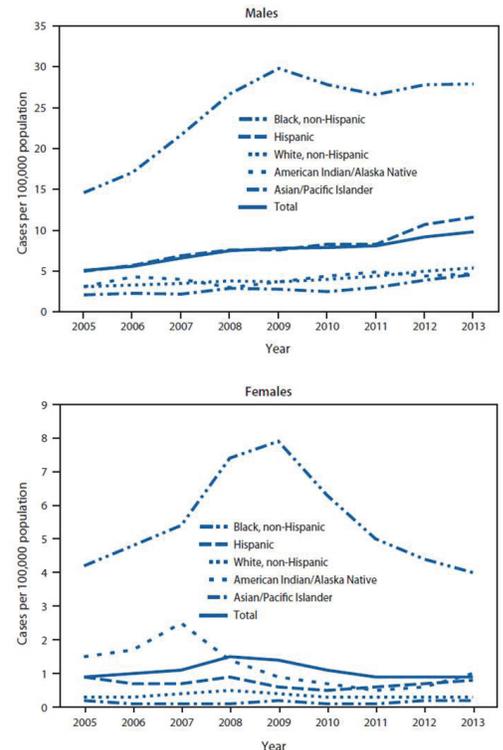
Syphilis is a chronic, systemic infection with protean clinical manifestations. Historically, it has been known as the “great imitator” or “great masquerader” because its appearance can resemble many other diseases. Sir William Osler famously stated, “To know syphilis is to know medicine”. While the rates of syphilis have declined substantially since the availability of penicillin, it remains an important sexually transmitted infection and, in fact, the rates of primary and secondary syphilis (defined below) are beginning to increase again. In the U.S. during 2014, the last year for which reporting is complete, there were over 20,000 cases, an increase of 15% over the previous year; the calculated rate was 6.3 per 100,000 people, though the geographic distribution of cases is heterogeneous (Figure 1). In Delaware that same year, there were 47 cases reported, for a rate of 5.0 per 100,000. It should be noted that certain populations account for a disproportionate number of cases, including African Americans and men who have sex with men (MSM) (Figures 2 and 3).

Clinically, disease is categorized as primary, secondary, and tertiary and there may be a long period of disease inactivity in an infected person, known as latent syphilis. Sexual transmission of the causative organism, the spirochete *Treponema pallidum*, results in the lesion known as



**Figure 1.** Geographic distribution of cases of primary and secondary syphilis, United States, 2014.

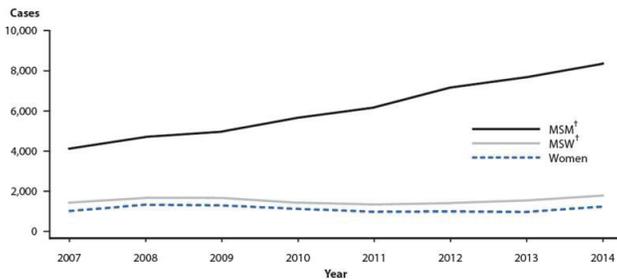
a chancre at the infection site, usually after an incubation period of 10-90 days. This characteristic lesion of primary syphilis is highly infectious, but eventually resolves. When the organism gains access to the blood stream, secondary syphilis



**Figure 2.** Incidence of primary and secondary syphilis in selected ethnic populations, United States.

results. Skin rashes (Figure 4), mucous membrane lesions and lymphadenopathy are the main clinical manifestations. However, neurologic and other manifestations may occur at this stage of disseminated infection. Recurrences of mucocutaneous manifestations of secondary syphilis are common, and often less pronounced. The organism then becomes latent, usually for a period of years. Tertiary disease may take many forms, with cardiac involvement (e.g. aortitis), central nervous system involvement (e.g. tabes dorsalis and general paresis), and gummatous lesions (skin and internal tissues and organs).

There is an interesting and bidirectional relationship between syphilis and chronic HIV infection. The chancre and



**Figure 3.** Cases of primary and secondary syphilis in women and in men who have sex with women and men who have sex with men.

mucocutaneous lesions of syphilis facilitate the transmission of *Treponema pallidum*. Syphilis probably has a negative effect on the HIV viral load. Clinical manifestations of syphilis are often different in HIV-infected persons, with a more rapid clinical course, atypical and severe disease manifestations, and higher risk for neurologic involvement.

The diagnosis of syphilis begins with a high index of suspicion, followed by appropriate testing. Direct evidence of the presence of *T. pallidum*, by darkfield examination or polymerase chain reaction testing, provides proof of infection. However, the vast majority of infected persons will be diagnosed using serologic methods. Two different types of tests are used, treponemal and non-treponemal. Treponemal tests (e.g. FTA-ABS, TP-PA and EIAs) detect antigens of the organism and are typically positive for life, once a person is infected. Non-treponemal tests (e.g. RPR or VDRL) may have biologic false positives (for example, in autoimmune disease or other chronic infections), but are useful because the titers correlate with disease activity and a drop in titer in a patient who has been treated is correlated with cure of infection. Historically, testing began with the use of a non-treponemal test, which if positive, was confirmed with a treponemal test. Recently the “reverse algorithm” for testing has been used by some high volume laboratories, because automated treponemal testing is faster and cheaper; positive tests then need to have a reflex non-treponemal test to reflect disease activity.

Because of either a high risk of infection or the risk of severe consequences of infection, certain populations should be routinely screened for syphilis. Examples include, respectively, persons with high risk sexual behaviors and pregnant women.

Congenital syphilis occurs by one of two mechanisms. When

pregnant women with early syphilis are bacteremic with the spirochete, infection of the fetus may occur transplacentally. This results in high rates of fetal death and stillbirth. Clinical manifestations may be present at birth and resemble secondary syphilis in adults, with pronounced mucocutaneous manifestations. If the mother has a chancre, the baby may become infected during passage through the birth canal. This mechanism results in a delayed expression of clinical disease. Infected children can go on to have late manifestations of congenital syphilis, which can affect the bones, teeth and nervous system.

The treatment of choice for syphilis is parenteral penicillin G. For most people, one dose given intramuscularly is sufficient, but for late latent syphilis, 3 weekly IM doses are administered.



**Figure 4.** Skin lesions characteristic of secondary syphilis.

Neurologic disease is treated with intravenous penicillin G. Follow up serologic testing is recommended for two reasons. Importantly, a

fall in the non-treponemal test titer is correlated with adequacy of treatment. Secondly, some people with high risk sexual behaviors will become reinfected.

There are several keys to prevention of infection. Education of persons with high risk sexual behaviours should include advice to reduce the number of sexual partners, to correctly and consistently use condoms, and to avoid the use of drugs and alcohol during sexual encounters. The sexual partners of persons diagnosed with syphilis should be notified of their exposure and the importance of evaluation and possible therapy. Departments of public health play an important role in this regard. Education regarding sexually transmitted infections and how to avoid them is an important part of public school health curricula.

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by Stephen C. Eppes, MD

# Gonorrhea

*Neisseria gonorrhoeae* causes about 820,000 new infections in the U.S. each year. The vast majority of these infections are sexually transmitted, making gonorrhea the second most common sexually transmitted infection (STI). Delaware has rates of gonorrhea that are among the highest in the United States. Figure 1 shows the age distribution of infection in men and women. African Americans account for a disproportionately high number of cases (Figure 2). Other risk factors for infection include multiple sex partners, a sex partner with multiple partners, other STIs and inconsistent condom use.

Infection in men usually causes symptomatic urethritis, often causing them to seek medical care. Women often have asymptomatic cervicitis which, if not diagnosed and treated, can progress to pelvic inflammatory disease that can lead to tubal scarring, infertility and tubal pregnancy. Painful perihepatitis (Fitz-Hugh-Curtis syndrome) can also result.

Sex practices, particularly among men who have sex with men (MSM) can lead to infection in the pharynx and rectum, which is usually asymptomatic. Persons of both sexes can experience disseminated infection, which causes skin lesions, tenosynovitis and arthritis. Women with gonococcal infection can transmit the organism to an infant during childbirth causing severe conjunctivitis and sometimes disseminated disease in the baby. Infection at any site can also occur in prepubertal children when seen in this population, sexual abuse should always be considered.

Because infection is often asymptomatic (but with the potential for severe consequences), annual screening is now recommended for sexually active women under 25 years of age, and for older women with additional risk factors. This is typically done using nucleic acid amplification tests (NAAT)



which can be used for vaginal swabs, endocervical swabs and urine. MSM are also candidates for periodic screening, typically using urine and extragenital (pharynx and rectum) swabs. Gram stain and cultures can also be used for all of these sites and are the microbiologic tests of choice for disseminated disease. In symptomatic men, a simple and inexpensive Gram stain of urethral discharge which shows intracellular Gram-negative diplococci is highly predictive of the diagnosis of gonorrhea. Among patients with suspected treatment failure, culture must be used (often accompanying NAAT) so that antimicrobial susceptibility testing can be performed.

Over the years, *N. gonorrhoeae*, once uniformly susceptible to penicillin, has become increasingly resistant to antibiotics (Figure 3). In 2007, the development of fluoroquinolone resistance caused the CDC to cease recommending that class of antibiotics, leaving cephalosporins as the most reliable agents. More recently, increasing resistance to cefixime (an oral antibiotic) left parenteral ceftriaxone as the mainstay of treatment. Tragically, in other countries, ceftriaxone resistance is now being reported. Azithromycin is usually active against *N. gonorrhoeae* and is also a recommended treatment for *Chlamydia trachomatis* (which is a frequent co-infection). For these reasons, the current CDC recommendation is for dual therapy for non-neonatal infection, using ceftriaxone and azithromycin. Treatment should be provided in the office or clinic and directly observed to guarantee 100% compliance. Specific recommendations for treatment can be found in the CDC's Sexually Transmitted Infections Treatment Guidelines<sup>1</sup> which are periodically updated.

For neonates born to infected mothers, the use of erythromycin ointment as prophylaxis against ophthalmic gonococcal infection has dramatically reduced the incidence of eye infection. Ceftriaxone and cefotaxime are recommended for neonatal infection.

Any recent (within the preceding two months) sex partners should be evaluated, tested and treated if positive. On site directly observed treatment is preferred, but if a partner is unwilling to be seen, prescriptions for cefixime and azithromycin can be delivered along with appropriate written instructions. In order to avoid transmission to others, persons treated for gonorrhea should be counseled to abstain from sexual activity for one week after treatment and until all partners have been treated. Unfortunately, those with a history of gonorrhea are likely to experience repeated infection, due to high risk sexual encounters. The current CDC recommendation is to screen patients 3 months after treatment in order to detect recurrences.

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Figure 1

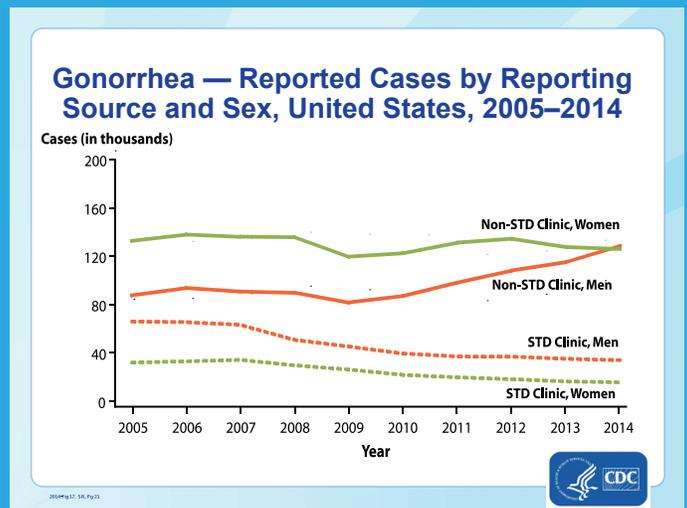


Figure 2

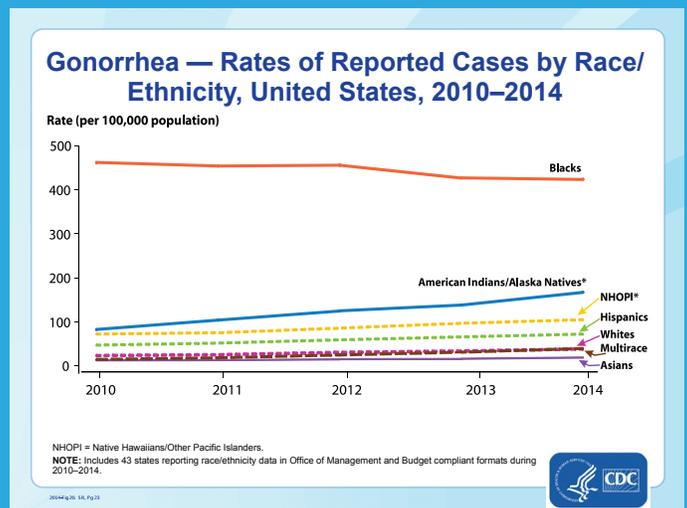
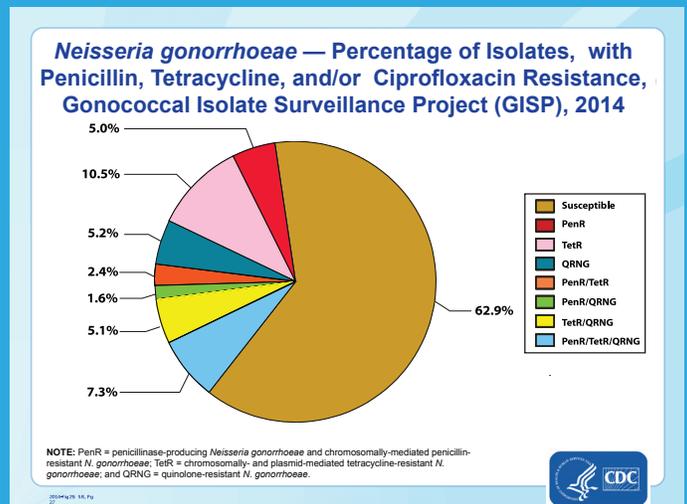
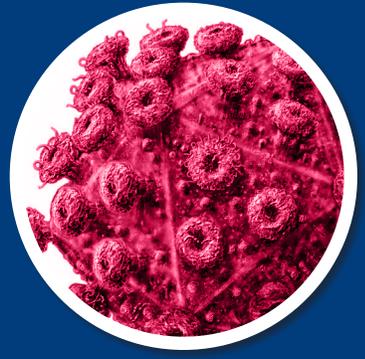
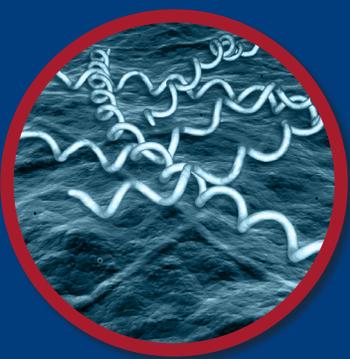
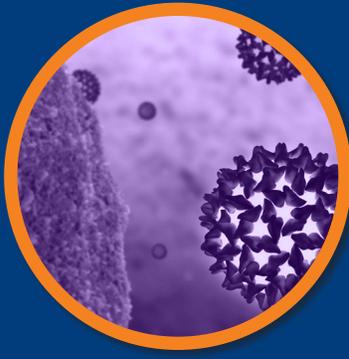
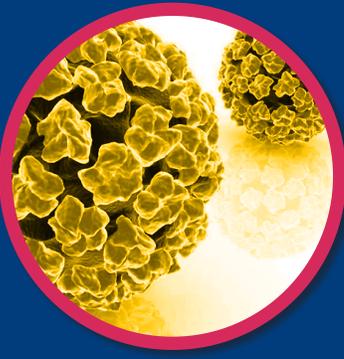
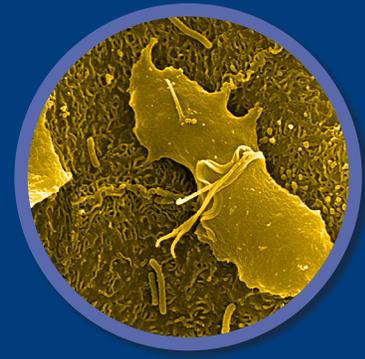
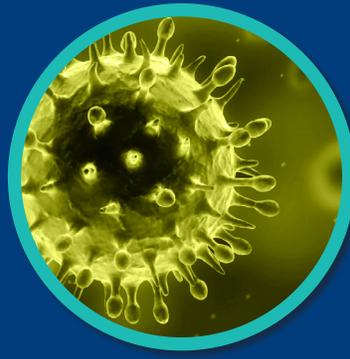


Figure 3



Stephen C. Eppes, MD is the Vice Chair of Pediatrics, the Director of Pediatric Infectious Diseases, and Associate Director of Infection Prevention at Christiana Care Health System. He is also a Professor of Pediatrics at the Sidney Kimmel Medical College at Thomas Jefferson University.



# Sexually Transmitted Diseases: An Overview

**Ruth Lytle-Barnaby**, *MSW, CEO and President of Planned Parenthood Delaware*

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Sexually Transmitted Diseases or Sexually Transmitted Infections impact the lives of millions of Americans. Some STIs only infect the genital area while others infect the whole body. Some people with STIs have no symptoms, while others experience painful symptoms and embarrassing sores. Because STIs are often undetected in the general population, regular or annual testing is recommended for populations that engage in at-risk sexual activity. Your physician may recommend more frequent testing based on risk.

## There are several different types of STIs. The most common are:



### Chlamydia

Chlamydia trachomatis is a sexually transmitted bacterial infection spread during vaginal, anal or oral sex with someone who has chlamydia. Untreated, it can lead to Pelvic Inflammatory Disease, tubal factor infertility, ectopic pregnancy, and chronic pelvic pain. Additionally, a mother with chlamydia can give it to her baby during childbirth.

Chlamydia is the most frequently reported STI in the United States.

Symptoms show up 7-28 days after having sex. Most women and some men have no symptoms.

**Symptoms for Women:** vaginal discharge, bleeding from the vagina between periods, burning/pain during urination, frequency of urination, pain in the abdomen (sometimes with fever and nausea).

**Symptoms for Men:** watery white drip from the penis, burning/pain during urination, frequency of urination, swollen or tender testicles.

**Diagnosis:** Chlamydia is diagnosed by obtaining either a vaginal swab or urine for women, and a urine sample from men, and are sent to a lab for diagnosis.

**Treatment:** Chlamydia is treated with antibiotics (either a single dose or 7 day course) and patients are asked to abstain from sex for 7 days. Re-testing should occur 3 months post-treatment. Some healthcare providers provide EPT (expedited partner therapy) to help partners get treated quickly.

**Prevention:** condoms, when used correctly, can reduce the risk of chlamydia. Other prevention measures include abstinence from sex, screening partners for history of STIs, and use of barrier methods to decrease contact transmission risk; and if you do engage in sex, limit the number of sex partners.



### Gonorrhea

Gonorrhea is a sexually transmitted disease caused by infection with the Neisseria gonorrhoea bacterium. Gonorrhea infects the mucous membranes of the reproductive tract including the cervix, uterus, and fallopian tubes in women, and the urethra in men and women. It can also affect the mucous membranes of the mouth, throat, eyes and rectum.

Most women and some men are asymptomatic for gonorrhea. For those that do have symptoms, they show up 2-21 days after sex.

**Symptoms for Women:** thick gray or yellow discharge from the vagina, burning or pain during urination/bowel movement, abnormal periods, bleeding between periods, cramps and pain in the lower abdomen.

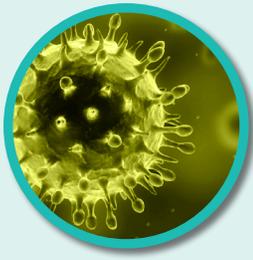
**Symptoms for Men:** thick yellow or greenish drip from the penis, burning/pain during urination/bowel movement, frequency of urination, swollen or tender testicles.

**Diagnosis:** both men and women can be tested with a urine sample. Swab testing can also be used with women vaginally, men and women (anal), and a throat swab for both men and women.

**Treatment:** dual therapy is recommended for treatment of Gonorrhea. This typically is ceftriaxone (single dose injection) and azithromycin (oral single dose). Re-testing should occur 3 months post treatment. Individuals are asked to wait 7 days post treatment to have sex.

**Adverse Reactions:** these can occur with persons with a history of penicillin allergy.

**Prevention:** latex condoms reduce the spread of Gonorrhea. Other prevention measures include abstinence from sex, screening partners for history of STIs, and use of barrier methods to decrease contact transmission risk; and if you do engage in sex, limit the number of sex partners.



## Herpes

Genital Herpes is an infection that is spread via sexual contact through exposure to open skin (sores/lesions) to intact skin, or genital/oral secretions. It is rarely from shedding of the skin that looks normal. Transmission often occurs from an infected partner who does not have visible sores and may not know he/she is infected. Long-term complications from Herpes are rare, but Herpes can cause blindness, encephalitis, aseptic meningitis, or extragenital lesions. Herpes can be passed from mother to baby during pregnancy.

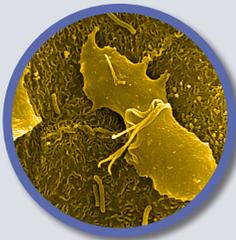
Most people with Herpes have no symptoms. If a person does have symptoms, they show up 1-3 days or longer after having sex.

**Symptoms for Women and Men:** flu like feelings, small painful blisters on the sex organs or mouth, itching or burning before the blisters appear, blisters lasting 1-3 weeks. The blisters can return at a later time.

**Diagnosis:** diagnosis of Herpes requires a collection of a sample from a sore that is sent to a lab to be processed. Blood testing to detect the herpes antibodies can also be given.

**Treatment:** antiviral medications can prevent or shorten herpes outbreaks. In addition to this, daily use of antiviral medication can reduce the chance of recurrence, and the likelihood of transmission to partners.

**Prevention:** latex condoms can reduce the risk of genital herpes, however outbreaks can occur in areas not covered by a condom. It is important to abstain from sexual activity when sores are present, however herpes can still be transmitted even when no symptoms are present. Other prevention measures include abstinence from sex, screening partners for history of STIs, and use of barrier methods to decrease contact transmission risk; and if you do engage in sex, limit the number of sex partners.



## Trichomoniasis

Trichomoniasis is a sexually transmitted disease caused by a parasite called trichomonas vaginalis. In women, the most commonly affected area is the lower genital tract, and in men it is in the urethra.

Many people have no symptoms, however those that do have symptoms show up 5-28 days after having sex.

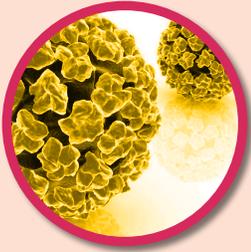
**Symptoms for Women:** burning, itching in the vagina, and yellow/gray/greenish discharge from the vagina.

**Symptoms for Men:** watery/white drip from the penis, burning/pain when urinating, and frequency in urination.

**Diagnosis:** a lab test, in combination with a physical exam, is used to confirm this diagnosis. A sample of vaginal or urethral fluid is used for this test.

**Treatment:** a single dose of antibiotic (either metronidazole or tinidazole) taken orally. Refrain from sex until all the symptoms go away.

**Prevention:** latex condoms reduce the spread of Trichomoniasis. Other prevention measures include abstinence from sex, screening partners for history of STIs, and use of barrier methods to decrease contact transmission risk; and if you do engage in sex, limit the number of sex partners.



## HPV

HPV is the Human Papilloma Virus. There are 100 types of this virus and 40 of them are sexually transmitted. These 40 types of HPV can affect the genital area (vulva, vagina, cervix, rectum, anus, penis or scrotum). Low risk types cause vaginal warts. High risk types may cause cell changes that can lead to cervical and certain other genital and throat cancers. Most types seem to have no harmful effect at all.

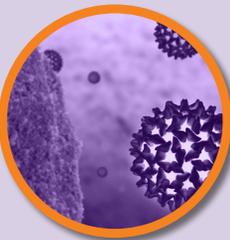
At any given time between 10-15 million people have high risk HPV. HPV is so common that about 50% of men and 75% of women have HPV at some point in their life. Most HPV infections go away within 8-13 months. HPV that does not go away can hide in the body for years. Condoms reduce the risk of HPV but are not 100% effective because HPV may be present in skin that is beyond the area covered by a condom.

**Pap Test:** detects abnormal cell changes and are observed by a lab professional looking through a microscope.

**HPV Test:** detects the virus that causes the abnormal cell changes. This is completed by a computer system that evaluates a sample of cervical cells.

**Prevention:** HPV Vaccine – this is a series of three separate injections over the course of 6 months. It protects against the two types of HPV that cause genital warts and 2-5 types of HPV that cause 70% of all cervical cancer. Vaccines should be given to both males and females from ages 9-26. Vaccine side effects include pain, swelling, itching, and redness at the injection site, fever, nausea, dizziness, vomiting and fainting. Other prevention measures include abstinence from sex, screening partners for history of STIs, and use of barrier methods to decrease contact transmission risk; and if you do engage in sex, limit the number of sex partners.

**Treatment:** there is no current treatment for HPV itself. Treatment is available for the abnormal cell changes caused by HPV (i.e. warts).



## Hepatitis B

Hepatitis B is a liver infection caused by the Hepatitis virus. It is spread via sexual contact, needle sharing, through direct contact with infected blood, or from mother to baby at birth. For some, Hepatitis B is a short-term illness, but for others it can become a long-term chronic infection. 90% of infants infected become chronically infected, compared to 2-6% of adults. Untreated, it can lead to cirrhosis or liver cancer.

Most women and men have no symptoms. For those that do, they show up 1-9 months post contact.

**Men & Women:** persistent flu like symptoms, tiredness, jaundice, dark urine, light colored bowel movements.

**Diagnosis:** Hepatitis B is diagnosed through a blood test, sent to a lab for confirmation.

**Treatment:** there is no medication available to treat Hepatitis B. Rest, adequate nutrition and fluids help some people. Patients with chronic Hepatitis B are referred to physicians that monitor for liver disease.

**Prevention:** the Hepatitis B vaccine is usually given in a series of 3-4 shots over a 6 month period. Both children and adults can be vaccinated. In the US, this vaccine is typically given to newborns. Other prevention measures include abstinence from sex, screening partners for history of STIs, and use of barrier methods to decrease contact transmission risk; and if you do engage in sex, limit the number of sex partners.



## Syphilis

Syphilis is a sexually transmitted infection caused by the bacteris trepomena pallidum, with serious consequences if left untreated. Transmission can occur through vaginal, anal, or oral sex when the person without syphilis is exposed to a chancre in the genital area or on the lips/mouth. Pregnant women can transmit this disease to their unborn child.

### Symptoms occur in several stages, and are the same for women and men:

**1st Stage:** 1-2 weeks after having sex symptoms include a painless sore or sores on the mouth or sex organs. Sores last 2-6 weeks and go away, however syphilis still remains.

**2nd Stage:** symptoms show up as the sore heals. A rash appears anywhere on the body. Flu like symptoms. Both go away, however syphilis still remains.

**Latent Stages:** although no outward symptoms may occur for years, untreated persons may experience damage to internal organs, muscle movement difficulties, paralysis, numbness, gradual blindness and dementia.

**Diagnosis:** two types of blood tests are given to diagnosis syphilis – Non treponemal and treponemal.

**Treatment:** a single injection of Benzathine penicillin G can cure those with first and second stage syphilis. Persons with latent stage syphilis must receive these injections for an unknown amount of time. Persons allergic to penicillin may receive doxycycline or tetracycline.

**Prevention:** latex condoms can reduce the risk of transmission of the disease, however, syphilis can still be transmitted by touching areas outside the condom. Other prevention measures include abstinence from sex, screening partners for history of STIs, and use of barrier methods to decrease contact transmission risk; and if you do engage in sex, limit the number of sex partners.



## HIV/AIDS

Human Immunodeficiency Virus (HIV) is a virus that can be sexually transmitted or transmitted with needle sharing or other exposure to blood or body fluids from an infected individual. HIV is the virus that causes AIDS. This virus attacks the body's immune system. The body has a hard time fighting off infections and disease.

Opportunistic infections or cancers take advantage of the immune system and signal that the person has AIDS. HIV can be passed from mother to baby during pregnancy, childbirth, or breast feeding. Symptoms are the same for women and men. Symptoms may show up several months to several years after sexual contact.

**Symptoms:** unexplained weight loss/tiredness, flu like symptoms, diarrhea, white spots in the mouth, yeast infections that don't go away.

**Diagnosis:** initial blood test (Rapid HIV test) can be given with results given in a few minutes. If the results are positive, a second sample is taken and sent to a lab for confirmation. The results are returned within two weeks.

**Treatment:** HIV treatment is given with antiretroviral therapy (ART) and recommended for all people with HIV. ART slows the progression of HIV and reduces the chances of passing it on to others.

**Prevention:** pre-exposure prophylaxis (PrEP) is given to people at high risk for HIV and it significantly lowers their risk to contract AIDS. Other prevention measures include the use of a latex condom, abstinence from sex, screening partners for history of STIs, and use of barrier methods to decrease contact transmission risk; and if you do engage in sex, limit the number of sex partners.

## ABOUT PLANNED PARENTHOOD OF DELAWARE

Planned Parenthood of Delaware has served the Delaware community for 85 years by providing high-quality reproductive health care regardless of a person's income level. This is an important component of our mission – to serve anyone regardless of ability to pay. More than 60% of the patients we serve live at or below 150% of the federal poverty level, which was \$36,375 for a family of four in 2015. This makes the majority of our patients eligible for government programs such as Title X and Medicaid. Approximately 70% of our patients are between the ages of 18 and 29, half of our patients are people of color, and 10% of our patients are men.

Planned Parenthood of Delaware provided over 29,000 services in 2015. 94% of these services were for birth control, STD testing and treatment, breast and cervical cancer screenings, and other prevention services. 6% of services provided were for abortion care. For many of the women we serve, Planned Parenthood of Delaware is their only medical provider.

Delaware ranks in the top third among all states for incidence of STDs, including HIV and AIDS. Delaware ranks 12th for infection rates of syphilis (2013), 6th for incidence of chlamydia and gonorrhea (2013), 10th for incidence of HIV (2012), and 7th for incidence of AIDS (2012). In 2015, Planned Parenthood of Delaware provided 9,145 STD tests for both men and women (7806 women, 1339 men). We provided 928 HIV rapid tests for women and men (633 for women and 295 for men), for a total of 10,073 STD tests. This represents almost 34% of the services we provide.

Planned Parenthood of Delaware also provides contraception which comprises approximately 31% of our care. These contraceptive services include oral contraceptives, Nuvaring, contraceptive patch, IUDs, implants, hormonal injections (Depo Provera), condoms, and emergency contraception kits. Planned Parenthood of Delaware is a premier provider of Long Acting Reversible Contraceptives (LARCS) in the state of Delaware. We also provide cancer screenings, which include Pap tests, HPV vaccines, breast exams, colposcopy, LEEP procedures, and endometrial biopsies. Additionally, we provided pregnancy tests, reproductive health visits for women and men, IUD removals, destruction of vaginal, vulval and penile lesions, and ablation with extensive cervical dysplasia.

**The Centers for Disease Control (CDC) offers a wealth of information concerning STIs. Treatment guidelines change over time so confirming recommendations is recommended.**

One of the important new services provided is PrEP (pre exposure prophylaxis). PrEP is a pill that when taken daily, helps prevent the spread of HIV, the virus that causes AIDS, and is prescribed for people who are at high risk for becoming infected with HIV. HIV/AIDS in Delaware remains a significant problem. There are 5883 diagnosed people living with HIV/AIDS in Delaware. The death rate from HIV is greater in Delaware than it is nationally (source: Delaware Division of Public Health). Planned Parenthood of Delaware is one of four PrEP prescriber locations in Delaware. PrEP is a drug for those at high risk of contracting HIV/AIDS. It is not a vaccine, but a pill that when taken daily, helps prevent the spread of HIV. How does it work? The drug that is used right now is called Truvada, which helps stop HIV from taking hold and spreading throughout the body. A generic form will soon be on the market. It is prescribed for those at high risk for acquiring HIV, including those who sometimes have sex without using a condom, those whose sexual partner is at high risk for contracting HIV, those who have multiple sexual partners, those who have a sex partner that is an IV drug user, and those that have a sex partner who has HIV. It is not prescribed to those who are already HIV positive. Daily use of PrEP can lower the risk of contracting HIV through sexual intercourse by 90%. It can also lower the risk of contracting HIV through IV drug use by 70%. There are some medical assistance programs that cover the cost of PrEP for the uninsured, and it is now covered by Medicaid in Delaware. In the US, 50,000 persons contract HIV each year. The number of Americans living with HIV was at 1.2 million at the end of 2012. That number continues to rise. 12.8% of those who have HIV do not yet know they are infected. The Northeast region of the US has the highest rate of persons living with new HIV infections.

*Planned Parenthood of Delaware offers comprehensive testing, treatment, counseling, and education for STIs. We also participate in the PrEP program and are able to prescribe the medication to persons at risk for HIV that significantly lowers an individual's risk for transmission of this disease. In 2015 alone, we provided over 10,000 STI tests which comprised 34% of our services. We serve the State of Delaware with three clinics located in Wilmington, Newark and Dover. Appointments can be made by calling 800-230-PLAN or online at [www.ppdela.org](http://www.ppdela.org). We accept most forms of insurance, Medicaid and Title X.*



*Ruth Lytle-Barnaby is the President and CEO of Planned Parenthood in Delaware, a non-profit providing a wide range of reproductive and healthcare services for women, men, and teens. She has a background of over 30 years experience in a variety of healthcare roles.*

# Increasing Adolescent STI Screening in Delaware School-Based Health Centers

*Authors:* Kay McLean-Grant, RN, MSN, CPNP; Martha Coppage-Lawrence, RN, MSN, CPNP; Mary Stephens, MD, MPH

Sexually transmitted infections (STIs) are a significant healthcare concern for the adolescent population and untreated can lead to serious long-term consequences. School-based health centers (SBHCs) can circumvent the barriers to reproductive health care that adolescents frequently experience and provide STI detection and treatment services confidentially to this population.

This article describes a performance improvement project focused on increasing STI screening rates in fourteen SBHCs in Delaware. Several interventions were implemented including staff training in motivational interviewing, adoption of “same-day testing” philosophy, improved SBHC provider collaboration, changing the timing of specimen collection, development of a student self-referral tool, and group education STI awareness events. These changes were implemented in two phases between 2011-2013 leading to both an increase in STI screenings performed and an increase in STI positivity rates compared with baseline.

## **Background:**

It is estimated that nearly 20 million sexually transmitted infections (STIs) occur in the US annually. Half of these infections each year are among youth (ages 15-24) although they represents just 25% of the sexually active population. Frequently, these infections are asymptomatic and go undetected. Untreated STIs often lead to serious long-term health consequences, especially for adolescent girls and young women. Sequela includes upper genital tract infection and pelvic inflammatory infection (PID) with the potential for fibrosis, scarring, and loss of tubal function.<sup>1</sup> Ten to fifteen percent of untreated females with Chlamydia will develop PID.<sup>2</sup> Potential long-term results are tubal factor infertility, ectopic pregnancy, and chronic pelvic pain.<sup>3</sup>

Chlamydia is the most frequently diagnosed STI and the most commonly reported notifiable disease with a rate of 456.1 cases/100,000 population in the US in 2014. The rate of gonorrhea in 2014 was 110.7 cases per 100,000 people and both cases and rates of chlamydia and gonorrhea still remain highest in the 15-24 year old age group compared with any other.

Currently, the CDC recommends annual Chlamydia and Gonorrhea screening for all sexually active females aged < 25 years.<sup>4</sup> It is suggested that high-risk adolescents, including those previously diagnosed with an STI and those with multiple partners, be screened more frequently.<sup>5</sup> Although ranked as one of the 10 most beneficial and cost effective prevention services, Chlamydia screening is noted to be among the most underutilized with less than 60% of eligible females screened in 2009.<sup>6</sup> Studies

also indicate that repeated Chlamydia infection is often due to reinfection by male partners indicating the potential value of screening at-risk males.<sup>5</sup>

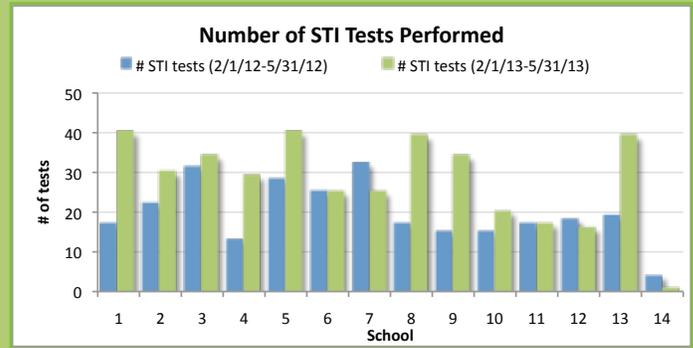
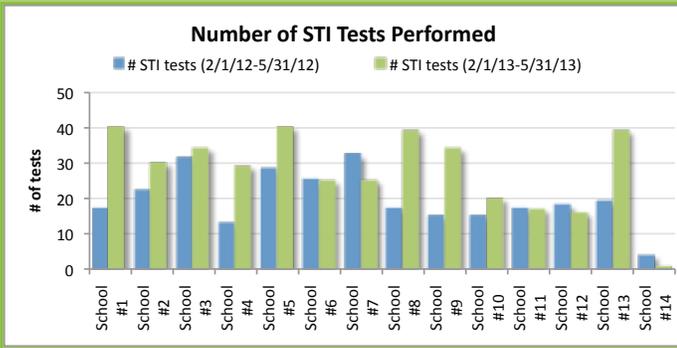
## **Adolescence and Reproductive Healthcare Barriers**

Adolescents frequently engage in risky behaviors that place them at-risk for significant consequences including STIs and unplanned pregnancy. It is theorized that principles of developmental neurobiology including immaturity of the prefrontal cortex, predispose teens to risk-taking, recklessness, and sensation-seeking behaviors.<sup>7</sup>

Adolescents also must circumvent multiple barriers to access quality reproductive health services. These include difficulties with transportation to healthcare facilities and a lack of insurance or other ability to pay for services. Adolescents are often uncomfortable accessing STI testing through traditional healthcare settings not necessarily designed to be adolescent friendly and often have significant confidentiality concerns.<sup>4</sup> Research indicates that providing teens with an adolescent friendly approach to healthcare encourages self-efficacious and risk-reducing behaviors.<sup>8</sup> In order to maximize effective reproductive healthcare, it has been suggested that providers need to “meet teens where they are” by providing counseling focused on limiting opportunities for immature judgment to have harmful consequences. Providing young people with the information, motivation, and behavioral skills to encourage making healthy choices as opposed to adult counseling methods focused solely on providing information has been shown to be more successful.<sup>7</sup> Based on these principles, Motivational Interviewing (MI) is a counseling style that is felt to be well suited to adolescents. This counseling technique utilizes collaborative conversation to strengthen a person’s own motivation and commitment to change. The overall style of MI is one of guiding, and the approach is to elicit an individual’s own thoughts and conclusions, not impose opinions from the outside.<sup>9</sup> This helps to empower adolescents to build the motivation to change.

## **School-Based Health Centers in Delaware**

School-based health centers (SBHC) provide comprehensive health and mental health services to adolescents in a school setting. Centers are commonly sponsored by existing community health care agencies and are available to all students.<sup>8</sup> SBHCs can provide a solution to some of the healthcare barriers adolescents experience, address their unique healthcare needs, and focus on an adolescent-friendly approach. Follow-up care is facilitated by the ease of access to services in the school setting where adolescents



spend the majority of their day.<sup>10</sup> The vision of SBHCs is to provide students with the health care they need to be successful in school by reducing barriers to such services. As of 2012, there were over 2000 such centers in the U.S. offering a range of health services.<sup>11</sup>

In Delaware, SBHCs are located in 29 public high schools, overseen by the Division of Public Health and operated by a medical partner. Care is provided by a multi-disciplinary team including medical and mental health providers in an adolescent friendly environment with no out-of-pocket fees. Reproductive health services are one of the services offered to students from 13-19 years of age. In order to be eligible to receive services, students less than 18 years of age must have a signed consent by a parent or guardian on record. Once that consent is obtained, the results of such evaluation and treatment are confidential. Available services vary from site-to-site but currently can include STI screening and treatment, pregnancy testing, oral and injectable contraceptive initiation, condom distribution, safe sex counseling, and HIV testing if approved by the School Board.<sup>12</sup>

### Baseline Data

Prior to the implementation of the project, students could self-refer for STI screening or be offered screening by the provider based on assessed risk during a visit. Urine STI screening was performed using the GEN-PROBE APTIMA urine specimen collection kits and analysis was done by the state laboratory that supports the SBHC programs. The GEN-PROBE APTIMA has a sensitivity and specificity for *C. trachomatis* of 96.5% and 98.7% respectively and sensitivity and specificity for *N. gonorrhoeae* 96.5% and 99.4% respectively.<sup>13</sup> Students were typically offered screening at or near the end of the office visit if it was not the primary reason for the visit or scheduled for screening at a later date. Students were noted to be reluctant to complete the screening process on the same day due to concerns about prolonging their visit to provide a urine specimen. STI screening visits scheduled for a later date were noted to frequently result in student “no-shows.”

During the school year 2009-2010, prior to implementation of the PI project, 503 STI screenings were performed at the 9 sites operated by Christiana Care Health System involved in phase 1 of the project. The rate of detected STI positivity (percent of positive tests captured and treated) was 11% (57 positive results/503 specimens.) All positive results were treated confidentially at the centers utilizing current CDC treatment guidelines.

## Measures

### Phase 1 (2011-2012)

#### Interventions

Nine SBHC participated in the first phase of the project. All providers received training to utilize motivational interviewing techniques with the adolescent population. As staff noted students frequently used the restroom when entering the SBHC, center staff was asked to request a urine specimen routinely upon check-in. If during the history collection the student was assessed as being sexually active, the student was encouraged to be screened with the collected urine. Reproductive health counseling (RHC) was provided. Both positive and negative results were shared and discussed with the student at a scheduled follow-up visit. STI risk awareness group education events were scheduled either in the high school cafeterias over lunch or in individual classrooms.

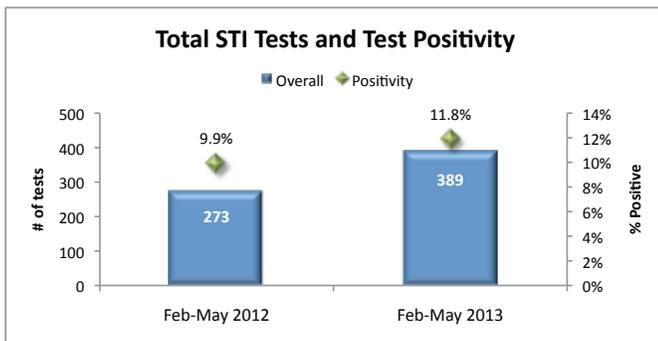
#### Results

The intervention was initiated in September 2011 at nine centers and data were collected until May 2012. A total of 679 STI tests were performed; representing a 35% increase compared to baseline. The rate of detected positivity was 14% (97 positive results/679specimens).

### Phase 2 (2012-2013)

#### Interventions

Encouraged by results from Phase 1 and recognizing that further improvement of the STI rates was both desirable and attainable, members of the SBHC performance improvement project team developed additional interventions to increase testing rates. A simple written tool was developed for students to self-refer for STI testing during all SBHC visits. Motivational interviewing techniques, as applied to the adolescent population, were again reviewed at provider meetings as a method to engage students in their healthcare decisions. Improved collaboration among medical providers and mental health providers at each site for reproductive health concerns was encouraged. Specifically, the mental health providers gave automatic referrals for medical services if a student was assessed as being sexually active during the yearly adolescent risk assessment screen visit and eligible to receive services. Medical providers were asked to adopt “same-day testing” philosophy. All students were again offered an additional SBHC visit to review results and to provide health and sexuality counseling and education. Additionally, providers were again



encouraged to schedule a group STI awareness education event at each site. As an incentive, the site that achieved the highest STI testing rate increase from their previous year would receive recognition at the annual end-of-year SBHC celebration. Of note, prior to this time period the number of SBHC sites managed by Christiana Care Health System increased from 9 to 14. All new sites were asked to participate. New registration forms were also instituted prior to Phase 2 which required all students to reregister for services. As a result, enrollment numbers dropped significantly during this process despite an increase in the number of sites as it took some time to rebuild the student base.

## Results

The changes were implemented 2/1/2013 at 14 sites and data was collected until 5/31/2013. A total of 389 tests were completed; with an average increase of 29.8% over the 14 sites compared with the same four months in Phase 1 (343 screens). The positivity rate increased from 9.9% to 11.8% in Phase 2 (46 positive STI tests/389 tests) during the four study months. Due to distracting variables as previously noted, data was only collected for four months rather than the nine in phase 1. Reproductive health counseling opportunities were not specifically measured, but likely were increased secondary to more students receiving STI testing services. A survey for both medical and mental health providers was offered at the completion of the study to obtain participant feedback. Seventy-three percent of project participants felt they had changed their practice as a result of the STI project implementation and 80% were “very likely” to continue to utilize the implementations in their future practice.

## Discussion

STIs are a significant healthcare concern for the adolescent population. Some common adolescent barriers to testing and treatment can be successfully circumvented in the SBHC environment. Simple interventions, such as changing specimen collection timing and encouraging same-day testing can lead to more teens being both screened and treated. Engaging all staff members of the SBHC team in the design of the intervention contributed to the success. Other modalities used to engage students in testing, such as a self-referral tool and the motivational interviewing style of counseling were acceptable to teens. Although the motivational interviewing style was uncomfortable for some providers at first, regular provider meetings with feedback helped to refine MI technique and increase acceptance. SBHCs are limited in some ways compared to other community

providers as they can only offer testing and treatment for STIs to minors who have consent from their parent or guardian to receive such services. However, their ability to provide services to students at no out-of-pocket cost in an accessible location is advantageous. While some of these unique aspects of the construct of SBHCs limit the generalizability of this performance improvement project, certain aspects and principles of it can be adapted for use in other community settings and in primary care practices. Within the SBHC environment, principles and practices from this project can be adapted and implemented to increase rates of use of reliable forms of contraception and screening for HIV.



*Martha Coppage-Lawrence, RN, MSN, CPNP, is the Senior Nurse Practitioner and Program Coordinator for School Based Health Centers at Christiana Care Health System. Martha is a graduate of the Pediatric Nurse Practitioner program at the University of Pennsylvania, in Philadelphia, Pennsylvania.*

*Martha has been working with adolescents in the School Based Health Centers for over 18 years. In 2013, Martha was a Fellow, at the Duke-Johnson & Johnson Nurse Leadership Program (Inaugural Cohort) where she led a project in the SBHCs regarding immunizations. Martha is a member of the Delaware Nurses Association. In 2012, she won the Delaware Excellence in Nursing Practice Award for Advance Practice Nursing. In 2014, she was recognized in Delaware Today as Top Nurse in the area of Pediatric Advanced Practice. MCoppage-Lawrence@christianacare.org*



*Mary Stephens, MD, MPH is a faculty member Christiana Care's Family Medicine Residency and the Medical Director of Christiana's School-Based Health Centers. mastephens@christianacare.org*

*Kay McLean-Grant, RN, MSN, CPNP - Nurse Practitioner and Coordinator, McKean School-Based Health Center GMcLean-Grant@Christianacare.org*

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# The DPH Bulletin

From the Delaware Division of Public Health

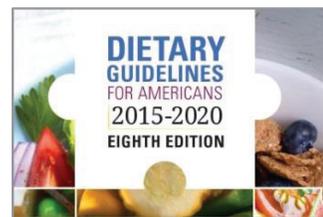
April 2016

## Dietary Guidelines for Americans: shift eating patterns

The U.S. Departments of Health and Human Services and Agriculture recently released *Dietary Guidelines for Americans 2015-2020*. This edition urges Americans to shift their eating patterns to promote health and prevent type 2 diabetes, heart disease, and lower risk for some cancers.

Almost nine in 10 Americans get less than the recommended amount of vegetables, and adults consume about 50 percent more sodium than

recommended. The guidelines advise to select more nutrient-dense foods and beverages using fresh, canned, dried, or frozen foods, and to:



- Consume less than 10 percent of calories per day from added sugars
- Consume less than 10 percent of calories per day from saturated fats
- Consume less than 2,300 mg per day of sodium
- If alcohol is consumed, it should be only by adults of legal drinking age who are not pregnant. Women should not have more than one drink per day and men should not have more than two drinks per day.
- Americans of all ages should meet the *Physical Activity Guidelines for Americans* to balance calories and manage body weight.

Families, schools, workplaces, communities, and retail food outlets should support healthy eating patterns. The [ChooseMyPlate.gov](http://www.choosemyplate.gov) tool offers budget-friendly recipes and proper portion sizes.

Don't ignore the Appendices, as they contain physical activity recommendations; calorie needs by age, sex, and level of physical activity; three eating patterns (Healthy U.S., Healthy Vegetarian, and Healthy Mediterranean-Style); nutritional goals for various age-sex groups, and food safety guidance. Included is additional information on alcohol and nutrients of public health concern: Calcium, Potassium, Vitamin D, and Dietary Fiber.

For more information, visit <http://health.gov/dietaryguidelines/>



## Delaware Quitline celebrates 15 years



For 15 years, the Delaware Quitline, a toll-free tobacco cessation hotline, helped 49,000 Delaware smokers try to break their addiction. Operated by the Division of Public Health (DPH) since 2001, the Quitline provides tobacco users (including e-cigarette users) with cessation counseling by phone or in person.

“Quitting smoking is one of the most important things a person can do to reduce their cancer risk,” said Dr. Karyl Rattay, DPH director.

Quitline services are free to Delaware residents age 18 and older. Eligible smokers can receive Food and Drug Administration-approved prescription cessation aids and non-prescription nicotine-replacement therapy such as patches, gum, and lozenges. Connect by calling 866-409-1858 or visit: [www.dhss.delaware.gov/dhss/dph/dpc/quitline.html](http://www.dhss.delaware.gov/dhss/dph/dpc/quitline.html).



Get the latest news and resources related to women's health in Delaware. Read the Delaware Office of Women's Health winter newsletter, published by OWH at this link:

[dhss.delaware.gov/dhss/dph/mh/owhnewsletters.html](http://dhss.delaware.gov/dhss/dph/mh/owhnewsletters.html)

## New Zika materials available from DPH

New Zika materials targeting pregnant women and their male partners are available at DPH's Zika page, <http://dhss.delaware.gov/dhss/dph/zika.html>:

- Flyer for pregnant women in English: <http://www.dhss.delaware.gov/dhss/dph/files/zikaflyerforpregnantwomen.pdf>
- Flyer for pregnant women in Spanish: <http://www.dhss.delaware.gov/dhss/dph/files/zikaflyerforpregnantwomensp.pdf>
- Flyer for pregnant women in Haitian Creole: <http://www.dhss.delaware.gov/dhss/dph/files/zikaflyerforpregnantwomenhc.pdf>

For facts about Zika and mosquito control:

- In English: <http://www.dhss.delaware.gov/dhss/dph/files/zikafaq.pdf>
- In Spanish: <http://dhss.delaware.gov/dhss/dph/files/zikafaqsp.pdf>
- In Haitian Creole: <http://dhss.delaware.gov/dhss/dph/files/zikafaqhc.pdf>



**Table 1. NIS-Teen Vaccination Coverage Data, Coverage with Individual Vaccines by state 13-17 years**

Year	source	completed							
		time 1	CI	time 2	CI	time 3	CI	series	CI
2014	National	60	1.9	50.3	1.9	39.7	1.9	69.3	2.4
2014	Delaware	67.6	9.3	51.4	9.9	42.3	9.8	69.7	11.8
2013	National	57.3	1.8	47.7	2	37.6	1.9	70.4	2.5
2013	Delaware	68.7	8.7	59.5	8.9	51.7	8.1	81.6	9.1
2012	National	53.8	1.9	43.4	1.9	33.4	1.7	66.7	2.6
2012	Delaware	67.2	9.8	64.5	9.9	50.4	10.8	76.6	10.8
2011	National	53	1.7			34.8	1.6	70.7	2.3
2011	Delaware	60.2	8.7			46.8	8.8	84.4	7.7
2010	National	48.7	1.8			32	1.7	69.6	3
2010	Delaware	63.9	8.55			40.4	9	68.6	12.1

In 2012, the CDC changed the number of measures reported adding >2. Prior, a rate for >1 vaccination and >3, and completion was provided.

National Immunization Survey (NIS –Teen). Data from the CDC’s National Immunization Survey (NIS) from 2010 to 2014 was used to complete descriptive and graphical analysis of Delaware rates of HPV vaccination and national rates. The sample include teens ages 13 to 17. “The NIS is a list-assisted random-digit-dialing telephone survey followed by a mailed survey to children’s immunization providers.” (CDC/National Center for Health Statistics, 2015). Challenges exist with the data set when comparing across years of vaccination as in 2013, the CDC changed the number of measures reported adding >2. Prior to that time, the CDC reported a rate for >1 vaccination and >3, and completion.

## Results

Results for the rates of vaccination are presented in Table 1 displaying the change over time. Delaware went from among the highest completed vaccination rate of 84.4% compared to the national average of 70.7% in 2011. In 2014, 69.7% compared to national level of 69.3% indicating a significant drop in Delaware’s rate.

## Discussion

### Successful Strategies in Delaware

Prior to considering factors that may be responsible for the decline in vaccination rates for HPV and potential solutions, it is important to review the efforts that resulted in attaining previous high rates. For five years, the state of Delaware exceeded the national rate of HPV vaccination for girls (Table 1) and led the nation in reporting high numbers

for vaccination. In the 2013 President’s Cancer Panel’s report on accelerating HPV Vaccine uptake, Urgency for Action to Prevent Cancer, more than one-half of girls in only two states (Delaware and Rhode Island) had received the full HPV vaccine series in 2012 (Figure 1), while vaccine completion was less than 30 percent in 11 states (National Cancer Institute, 2014).

Delaware’s success in years 2010 to 2013 was the result of a multi-pronged approach that included a broad array of strategies to engage both public and professionals within the state. The lack of a comprehensive evaluation plan does not allow for the identification of the impact of individual initiatives but the high vaccination rates support the conclusion of success. The strategies are reviewed below.

The Delaware State Division of Public Health, Delaware Cancer Consortium, and a local marketing firm worked collaboratively in efforts to accelerate HPV vaccination uptake. Initiatives to publicize to health care providers, parents and appropriate aged children about getting vaccinated have been ongoing. Delaware’s HPV campaign initially targeted women 18 to 26 years old, and in 2015 the campaign was expanded to include both males and females ages 11 to 12.

Campaigns were created with targeted approaches focused on parents, pediatricians and other primary care providers. These initial initiatives included: links sent to providers, Twitter, Facebook, Public Service Announcements (PSA), music station Pandora ads marketed to mothers, grocery cart inserts, and bus stop signs.

Delaware is somewhat unique in that it has a high percentage of schools with school-based health centers (SBHC) which likely contributed to the state’s early success. These are contracted by the Division of Public Health and located in 29 public high schools within the state (Delaware Health and Social Services: Division of Public Health, 2014). A multi-disciplinary team of health professionals operates Delaware’s SBHC and provide comprehensive health care services. The SBHC is designed to serve students who may lack access to other providers and address a broad range of health and health-related needs of students. Some of the services provided include: diagnosis and treatment of sexually transmitted infections; limited reproductive health services; HIV testing and counseling. All school-based health centers must receive written parental permission prior to providing medical, mental and nutritional health services to students.

One of the available services is immunizations for students covered by the VFC program. It has been suggested that SBHCs are an ideal setting for a recall or tracking system for immunizations because of the captive audience (Federico, Abrams, Everhart, Melinkovich, & Hambidge, 2010); (Vanderpool, Breheny, et al., 2015). SBHCs allow for the administration of vaccines to children without causing a major disruption to their school day or the need for their parent or guardian to potentially leave work three times to take them to complete the HPV series. Limited evidence in New Castle County SBHCs demonstrated SBHCs achieved a 78% completion rate of the HPV series. Part of the pilot involved administering the vaccines to commercially insured students and the results

suggested the program was able to cover the cost of the vaccine. Current data does not allow us to show the amount of impact the SBHCs have had on the HPV vaccination rate overall in Delaware.

## Potential factors resulting in the declining HPV immunization rates in Delaware

### Parent Concerns

Parents concerns for not getting their child vaccinated have included: vaccine is not needed (19%), doctor did not recommend the vaccine (14%), concerns about the safety of the vaccine (13%), didn't know about the vaccine or the disease (13%), daughter is not sexually active and therefore does not need the vaccine (10%) (The Centers for Disease Control and Prevention, 2013). Most parents feel vaccines protect their children from potentially life threatening diseases.

Recommendations to have adolescents vaccinated for HPV has been subject to public debate for its potential risks for increasing early sexual activity compared to the benefit of preventing future morbidity and mortality, which may contribute to variations in the rates of completion. Parental attitudes commonly noting their child is not sexually active have been a reason listed for not getting this population vaccinated (Underwood et al., 2015). A recent study using a large, longitudinal insurance database of females aged 12 to 18 examined whether HPV vaccination was associated with an increase in sexually transmitted infection (STI), a proxy for increased risky sexual behavior (Jena, Goldman, & Seabury, 2015). HPV vaccinated adolescent females and non-vaccinated females were compared for rates of STI. The study examined STI rates one year before vaccination and one year after in both groups and there was no increase in rates of STIs in the HPV vaccinated group (Jena et al., 2015).

Safety concerns have also been raised through social media that have not been supported by large studies but remain as urban legends (Stillo, Carrillo Santistevé, & Lopalco, 2015; Vichnin et al., 2015).

Patient/parent factors include fatalistic belief about cancer (Vanderpool, Dressler, Stradtman, & Crosby, 2015). Fatalistic views of survival have been reported in breast and other cancers in communities with higher prevalence rates. Lower HPV vaccination rates are associated with higher rates of HPV related morbidity (Moss, Reiter, & Brewer, 2015). As the period for display of HPV disorders is longer than the availability of the vaccine this suggests fatalism is impacting vaccine acceptance.

HPV concerns are part of continuing public fears of vaccinations in general. The Pew

Foundation (2015) reports 13% of parents with children under the age of 18 do not believe that vaccinations for measles, mumps or rubella are safe for healthy children (The Pew Research Center, 2015). The Pew survey suggested the highest rates of those who feel vaccines are unsafe are between 18 to 29 years of age (15%) and non-white (17%). Others have reported higher rates of non-vaccination in the children of young white college educated parents (Dorell et al., 2014).

While these reports reflect national trends in vaccinations, there are local sources adding to vaccination fears. A local health teacher at a high school in Delaware reports that she teaches the required curriculum but publicly stated: "Both shots (the flu shot and Gardasil) are incredibly toxic, incredibly unnecessary, and are doing incredible damage to the health of our children"; "Flu shots make you more likely to get sick. Gardasil makes you more likely to get HPV" (Bleiweis, 2015). Reports of the failure of vaccines to provide full protection are both part of urban legends and scientific reports that parents and teens consider in seeking vaccinations.

### Provider concerns

Provider reasons indicating a reluctance to discuss the vaccine include: parents express mixed or negative opinions about the vaccine, more likely to strongly recommend the vaccine to older adolescents than to those ages 11 and 12, and financial barriers related to the vaccine's cost and reimbursement issues (Daley et al., 2010). Additional concerns are reported related to the framing of the counseling discussion. Some providers are uncomfortable having a sexually related discussion with eleven year old patients in the presence of their parents (O'Brien, 2015). Others have made the HPV counseling approach more age specific focusing their discussion on cancer risk reduction with younger patients and their parents while using HPV vaccination as an entry point for discussion of sexual activity with older adolescents (Sussman et al., 2015). While pediatricians and other primary care providers have been encouraged to discuss the risks and benefits of HPV, a percentage of physicians do not endorse the vaccine or discuss its use in those considered high risk (Gilkey, Malo, Shah, Hall, & Brewer, 2015). The resistance among physicians is surprising given the safety and demonstrated effectiveness of the HPV vaccine in reducing the risk of a number of cancers and other pathologies.

There are system issues that impact the initiation of and completion of the vaccination series. Missed clinical opportunities are a

primary reason why the US has not achieved high rates of HPV vaccinations. According to the CDC, between the years 2007 and 2012, if all of the missed opportunities during health care visits were removed, 93% of girls aged 13–17 would have received at least their first dose of the vaccine by 2012 (The Centers for Disease Control and Prevention, 2013). Primary care providers report there are limited opportunities during the care of adolescents that are typically seen for episodic care to initiate HPV discussions (Sussman et al., 2015). Further, 50% of the providers reported they did not schedule second and third follow-up visits to complete the series in those who had initiated it. The providers reported a lack of systems to track the need for follow-up visits or the lack of resources to call the patients.

## Potential paths forward to improve HPV vaccination rates

The reduction in the rates of vaccination suggest the need for a change or reapplication of strategies which contributed to DE's early success. These include school, primary care partnerships, optimizing the use of electronic medical records systems, targeting at risk and/or high yield groups and strategies to address patient/family concerns.

### Vaccine School Mandates

Individual state laws establish vaccination requirements (and exemptions) for public and private school children, and are primarily decided by state legislatures. Some states have granted regulatory bodies (i.e. Health Department, Board of Health) the power to determine vaccine requirements.

There is continued debate surrounding whether or not to require girls and boys to be vaccinated against HPV and whether this should be a mandatory school vaccine. Individuals may support availability of the vaccine but do not necessarily support a school mandate. Concerns cited include cost of the vaccine, safety, and parents' rights to refuse; in addition, moral objections related to a vaccine mandate for a sexually transmitted disease. According to the CDC's Public Health Law Program, several reasons for vaccine exemption exist including medical, religious and philosophical exemptions or a combination of those (The Centers for Disease Control and Prevention, 2014).

Many states have introduced legislation to mandate HPV as a required school vaccine; however, some bills included language for providing information only on the vaccine while others pushed for mandatory requirement. There are few jurisdictions that require HPV

vaccines for school attendance (The Centers for Disease Control and Prevention, 2014).

## Other School-Based Opportunities and partnerships with primary care

Another potential opportunity would be an expansion of the vaccination program in the SBHCs to cover commercially insured students as well as those students covered by the VFC program. Enhanced communication with primary care providers and use of the state vaccine registry would facilitate both initiation and completion of the HPV series. Enhancements to the state's immunization registry, DelVax, may further facilitate the success of this complex vaccine series in that electronic/web-based entry allows for more up to date records and current programming allows for a reminder/recall system that individual sites can access.

## Electronic health records

Electronic health records (EHR) seem like a potential solution for more effective reminders to address the system level barriers noted by Sussman (2015) but this requires further development. In a study comparing prompted and unprompted cohorts, those receiving an EHR prompt were more likely to get an HPV vaccine (34.9% compared to 21.5%) and complete the vaccine series (Ruffin et al., 2015). Patients were more likely to start the vaccine and more likely to complete if their health care provider (HCP) received a prompt alerting them to patients who were due for a shot during any appointment (Ruffin et al., 2015). Informing patients and HCP during an appointment increased uptake and completion of the series. A systematic review of reminder systems, however, found mixed success in raising vaccination rates (Niccolai & Hansen, 2015) which suggests this may be an emerging strategy.

## A targeted approach

All states face challenges in determining their expenditures in meeting the health needs of the public. As the demographic for the vaccine expanded, the public health marketing strategies changed as well. Current initiatives include: broadcast (terrestrial radio, Pandora); stands at fitness centers, posters/cards at 72 physician offices state wide (Obstetrics and Gynecology, Pediatrics and primary care); banners/signage at malls and shopping outlets (ads in highly populated areas: food courts, location maps); print (ads in Delaware Today, Delaware Medical Journal); digital media (Google text, Bing, MaxPoint). In addition, all high school school-based health centers in the state received banner ads and HPV marketing materials. These mass

media tactics will run through July 2016.

An additional strategy to increasing vaccination rate overall is targeting geographic pockets of low vaccination rates. This method has demonstrated effectiveness on both the targeted area and impact on it neighbors which may be more effective than broad efforts in some states (Trogdon & Ahn, 2015). The enhancement in Delaware's tracking system will support more effective feedback to providers while also assisting in directing public health messaging to specific sub populations within the state.

## Addressing personal factors in increase vaccination

While these technological advancements are important strategies in enhancing vaccinations rates, they are not likely to change the attitudes of those parents, teens and health teachers who believe the urban legends surrounding HPV vaccination nor providers who may not see HPV as a priority. Each of these are likely to require face to face conversations with a trusted provider/mentor who is equipped with detailed knowledge about the benefits of vaccination. Additionally, providers will need ongoing knowledge of current common misperceptions and research of emerging risks associated with vaccinations as well as test strategies to assist parents, teens and teachers to make evidence based benefit and risk assessment of their need for vaccination. In January 2016, an e-mail blast from the Immunization Coalition of Delaware was sent to health care providers with CDC tips and suggestions on how to increase rates and improve awareness of HPV and encouraging the providers to be champions of HPV vaccinations in their community. <http://www.cdc.gov/hpv/hcp/index.html>

## Conclusion

In order to once again become a leader in HPV vaccination nationally, we need to improve parents', caregivers', and adolescents' understanding of HPV vaccines as a protective measure against cancer and decrease the stigma associated with vaccination. Cancer prevention messages should further incorporate the importance of early vaccination. We also have the opportunity to build upon Delaware's strong start to HPV vaccination by better utilizing available technology to coordinate and track care, incorporate vaccination strategies into acute care visits and better utilize our existing SBHC infrastructure. While going as far as to legislatively mandate HPV vaccination may not be necessary, a coordinated approach at the local and state level with attention to high priority areas should allow us to achieve Healthy People 2020 goals and become a national leader. Given

the safety and efficacy data, physicians should recommend the vaccination with at the same confidence as all other vaccines in the American Council on immunization practices regimen and not create undue hesitancy by relating this vaccine to sexual activity (Advisory Committee on Immunization Practices, 2015).

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The work of:



*Carolee Polek, RN, PhD, AOCNS is an Associate Professor of Nursing at the University of Delaware. An oncology nurse expert, Dr Polek serves on the Delaware Cancer Consortium, Early Detection and*

*Prevention Subcommittee.*



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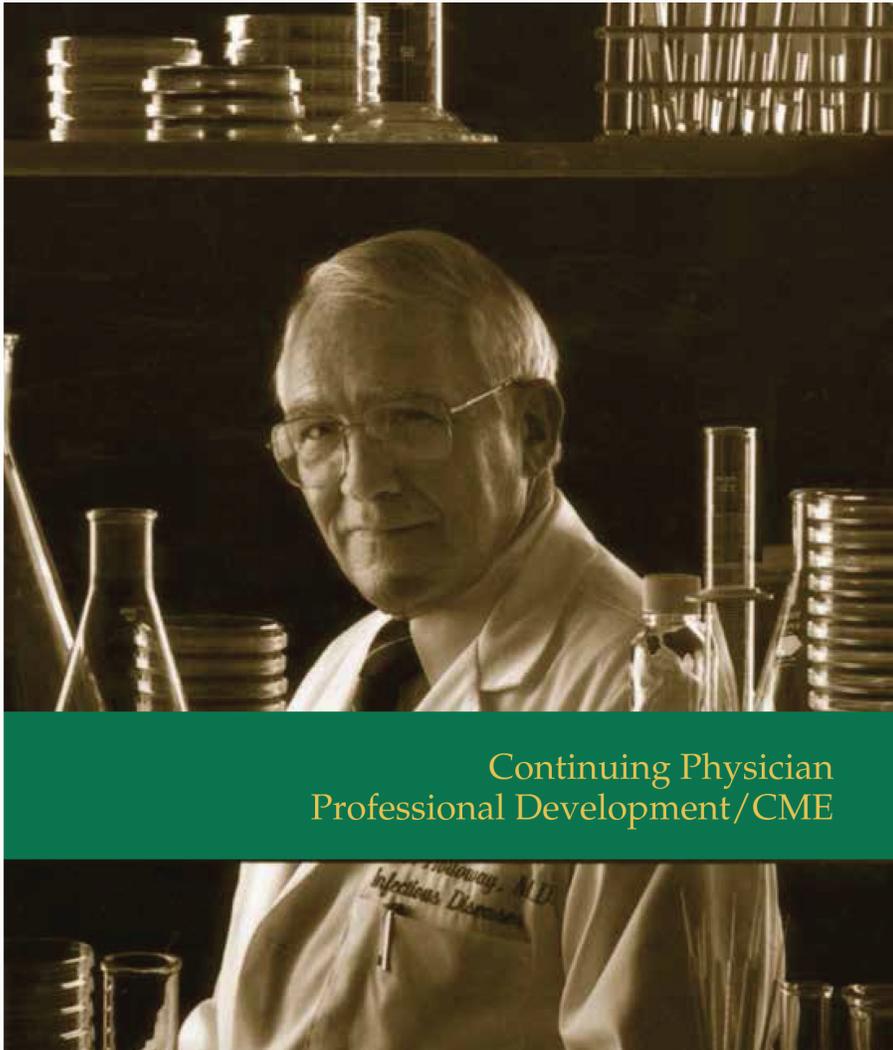
*Martha Coppage-Lawrence, RN, MSN, CPNP, is the Senior Nurse Practitioner and Program Coordinator for School Based Health Centers at Christiana Care Health System. Martha is a graduate of the Pediatric Nurse Practitioner program at the University of Pennsylvania, in Philadelphia, Pennsylvania. Martha has been working with adolescents in the School Based Health Centers for over 18 years.*



*Mary Stephens, MD, MPH is a faculty member Christiana Care's Family Medicine Residency and the Medical Director of Christiana's School-Based Health Centers.*



*Thomas Hardie, RN, EdD is a retired full professor from the University of Delaware and is currently an adjunct full professor at the University of Pennsylvania School of Nursing.*



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53rd Annual

William J. Holloway

Infectious Disease Symposium

Tuesday, May 3, 2016

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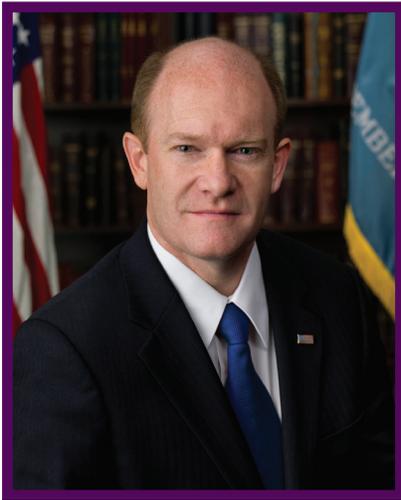
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# 2016 Excellence Awards

May 5, 2016 - 6:00pm

*Recognizing Excellence in*

## End-of-Life Care in the First State



Keynote Speaker:  
Senator Chris Coons

To nominate someone who has provided excellent end-of-life care, please go to:

[www.deolc.org/nominate](http://www.deolc.org/nominate)

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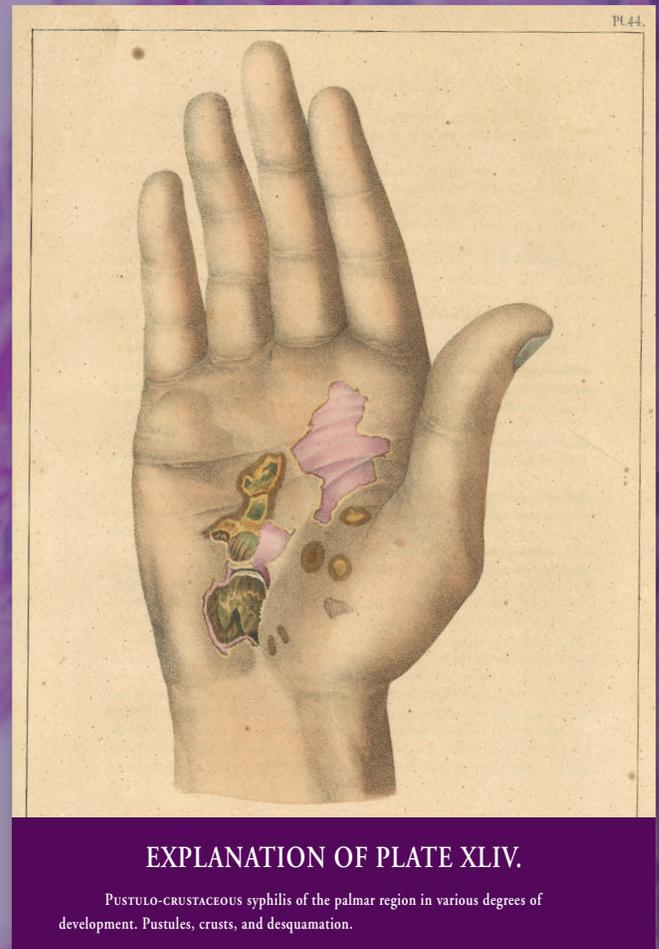
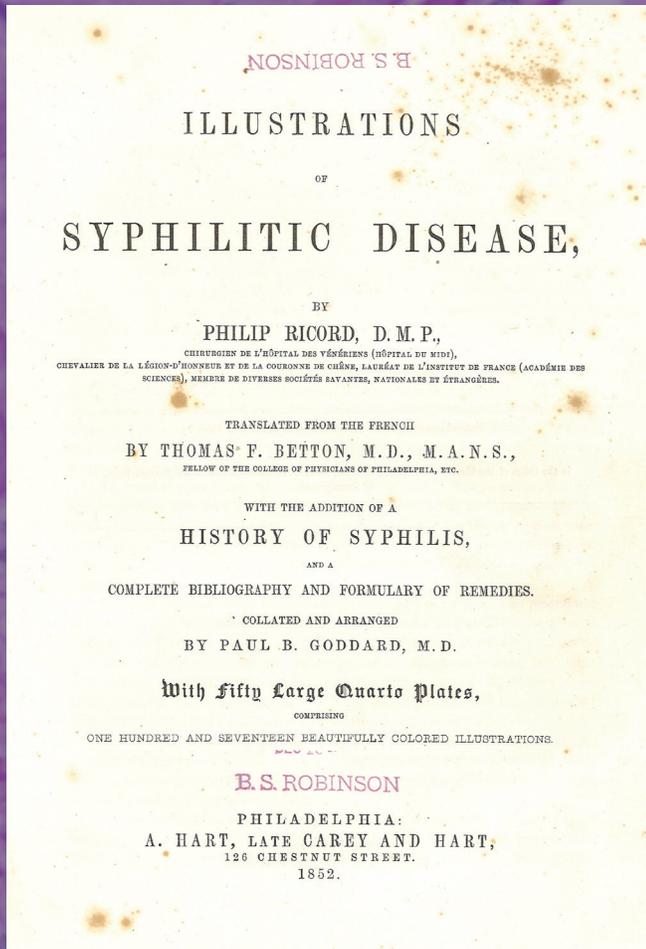
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*Delaware End-of-Life Coalition*

Educators, clergy, health professionals, caregivers, and community partners coming together



# From the History and Archives Collection



**A**lthough the nomenclature has changed, and the term “venereal disease” is used much less, the Delaware Academy of Medicine possesses a number of publications detailing historical treatment, diagnosis, and in-depth descriptions of venereal diseases.

In the 1990’s these diseases became more commonly referred to as “sexually transmitted diseases.” Today, they are even more broadly known as “sexually transmitted infections.” Venereal diseases conventionally referred to syphilis and gonorrhea, and many of the earlier publications in the Academy archives are focused predominately on these two diseases.

Translated from French, Philip Ricord’s publication, “Illustrations of Syphilitic Disease,” is comprised of colored diagrams, in-depth symptom descriptions, and formularies for recommended traditional remedies. This selected image

from Ricord’s compilation was first published in America in 1852 - 164 years ago when syphilis was a major and essentially untreatable disease.

There are four stages of Syphilis: primary, secondary, latent, and tertiary (also known as neurosyphilis). The illustration of a hand (above/below/left or right - depending on the placement of this text relative to the image) shows secondary, untreated, syphilis. The appearance of this rash may be confined to one part of the patient’s body - or spread over many parts. It can vary from rough and scaly to smooth reddish-brown spots. Diagnosis used to be much more challenging as rashes of this type can be caused by other diseases. Fortunately, modern medical diagnosis techniques have advanced significantly, has as our ability to treat secondary infections at the site of rash outbreaks.