

STIs and Pregnancy

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Disclosures

- Gilead-own stock

Objectives

- Describe epidemiology and clinical manifestations of STIs in pregnancy
- Discuss effect of different STIs on adverse pregnancy and fetal outcomes
- Discuss diagnosis and management considerations of STIs in pregnancy
- Review current recommendations for STI screening in pregnancy

Potential Implications of STIs in Pregnancy

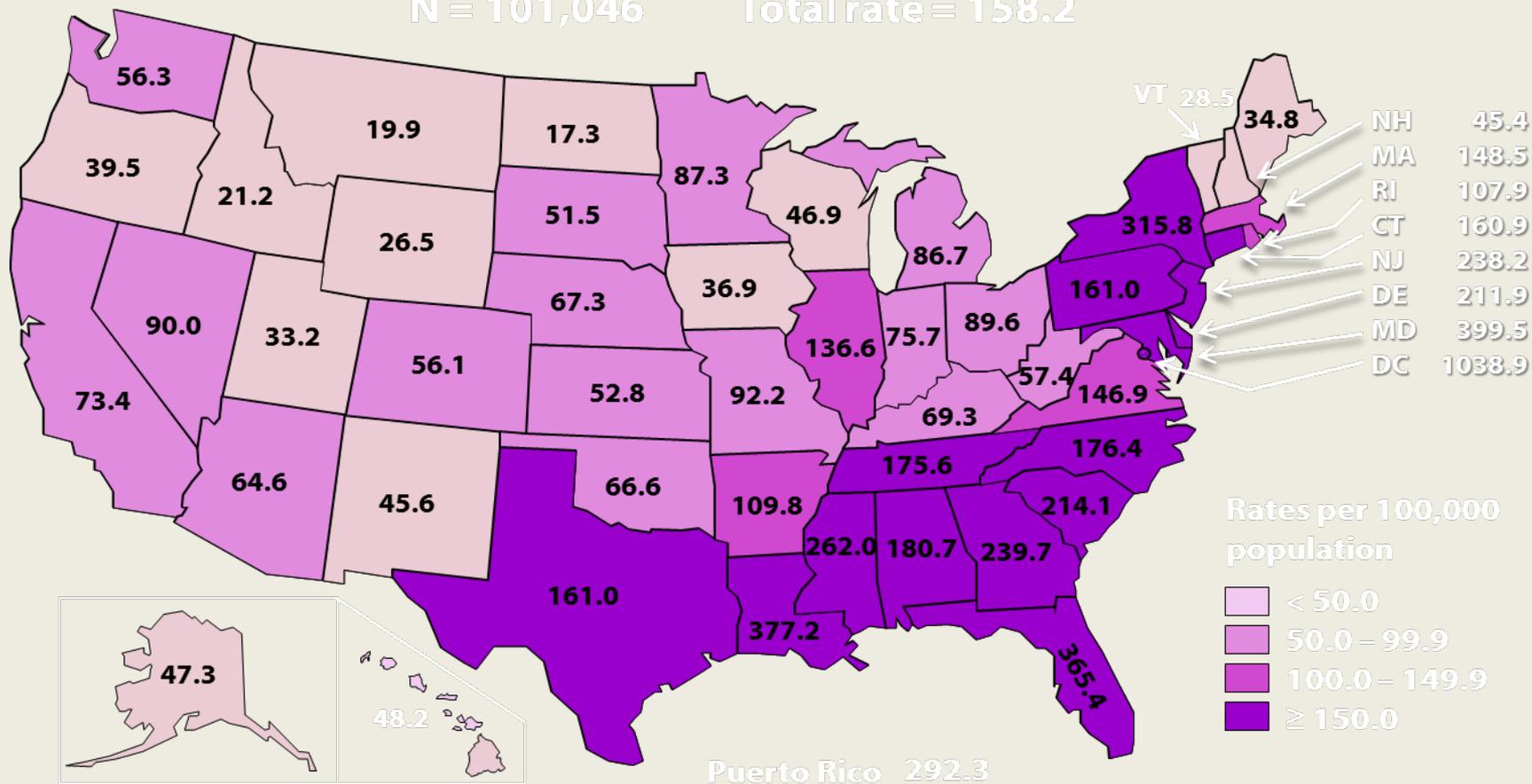
- Maternal morbidity/mortality
- Adverse pregnancy outcomes
- Adverse fetal/neonatal outcomes
- May require alteration in treatment

HIV

Rates of Females Aged 15-44 Years Living with HIV Infection, by Area of Residence, 2013

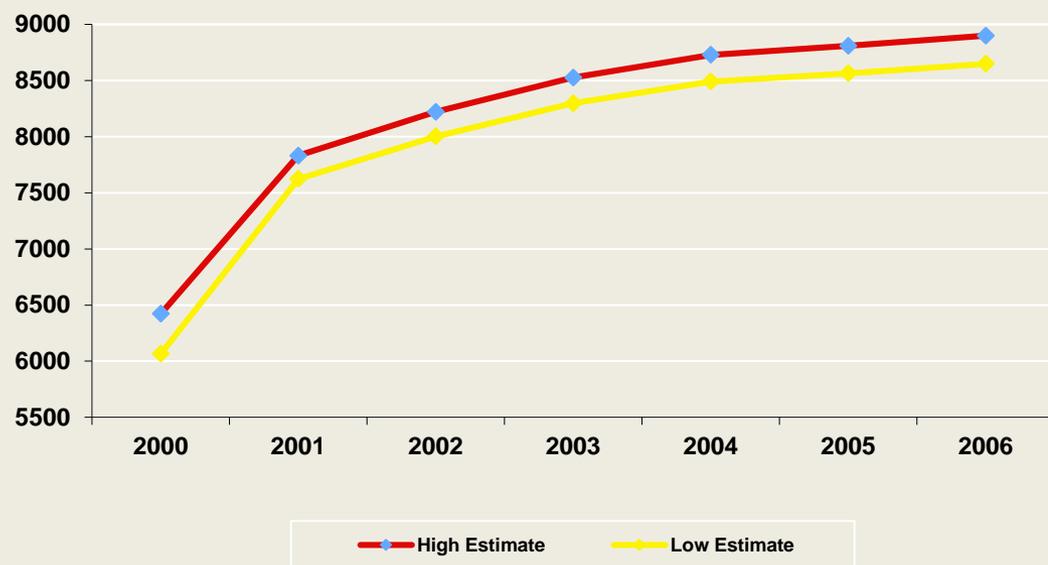
United States and Puerto Rico

N = 101,046 Total rate = 158.2



Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays, but not for incomplete reporting.

Estimated number of births to women living with HIV infection, 2000-2006, United States



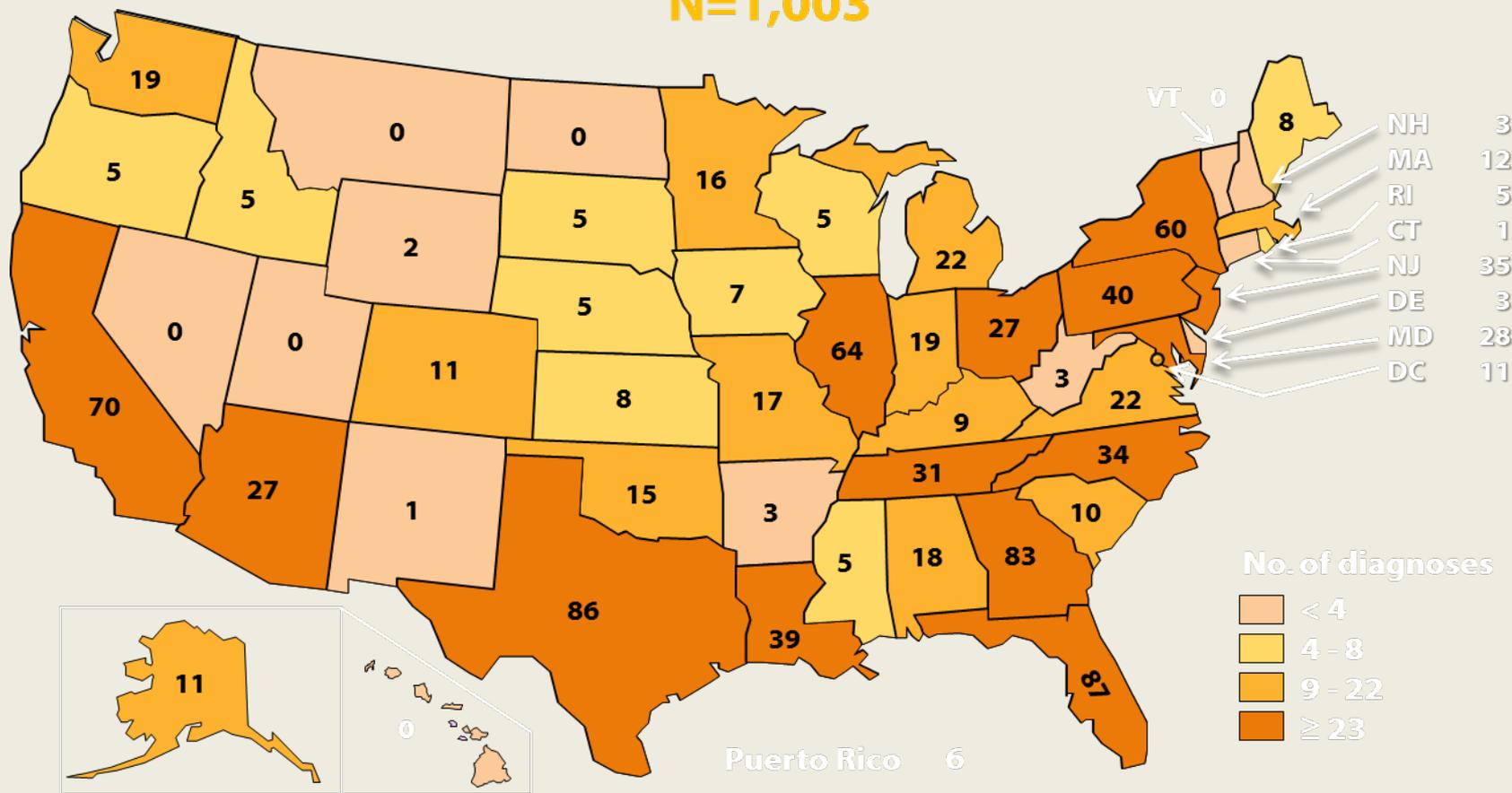
2006 estimate (8,650 – 8900) is ~30% > 2000 estimate (6075 – 6422)

Office of Inspector General (Fleming), 2002

*Whitmore, et al.
JAIDS 2011.*

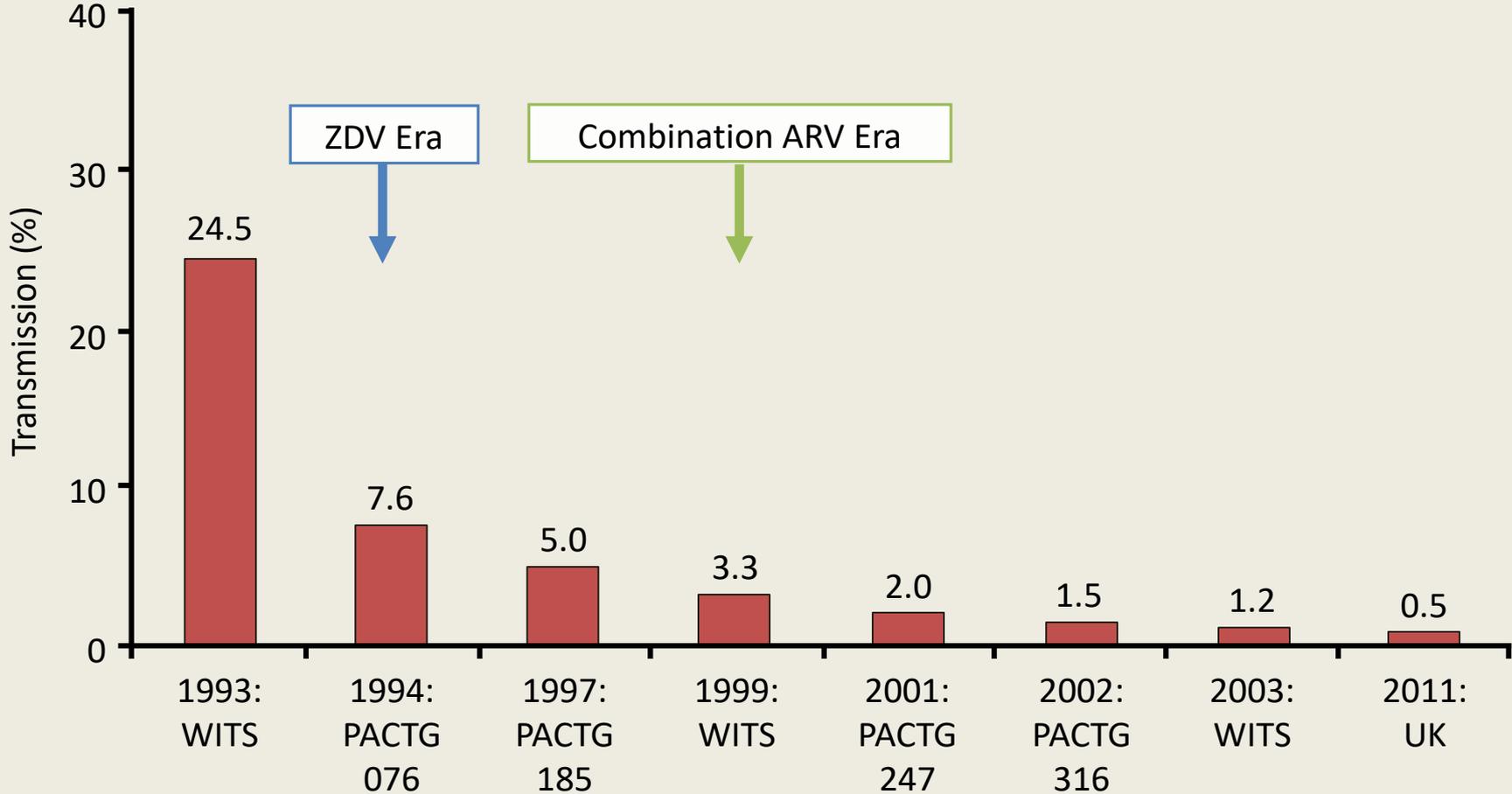
Diagnoses of Perinatally Acquired HIV Infection among Children Born During 2008–2012, by Area of Residence United States and Puerto Rico

N=1,003



Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays, but not for incomplete reporting.

Change in MTCT in Resource-Rich Countries



Courtesy Lynne Mofenson

Missed Opportunities

- Between 2005-2008 missed opportunities to prevent MTCT in 74.3% of infected children (Whitmore.Pediatrics 2012;129:e74)
- Retrospective review of infected infants in state of Georgia 2005-2012: 27 cases
 - 74% knew HIV status prior to pregnancy (only 50% had prenatal care)
 - 44%-no prenatal care
 - 52%-received no ART
 - Only 67% infants received ZDV prophylaxis
 - Csmscho-Gonzalez.AIDS 2015;29



Missed Opportunities

- Lack of or delayed maternal testing
- Maternal genital tract infection-associated with HIV-RNA discordance between plasma and genital tract
- Acute HIV infection in pregnancy (Birkhead et al. *Obstet Gynecol* 2010;115:1247; Patterson et al. *AIDS* 2007;21:2303)
 - Associated with increased MTCT
 - Pregnancy a period of increased risk for HIV acquisition (Gray. *Lancet* 2005;366:1182; Bernasconi. *J Clin Virol* 2010;48:180; Moodley. *AIDS* 2009;23:1255)
- Lack of early and sustained control of viral load (Tubiana et al. *Clin Infect Dis* 2010;50:585)
 - Access to the most effective regimens
 - Avoiding treatment interruption in pregnancy
- Lack of infant ARV prophylaxis
- Breastfeeding

Timing of Mother to Child HIV Transmission

Majority Transmission is Intrapartum

No Breastfeeding

In Utero

Peripartum

Postpartum



25-35% in utero
(majority late)

65-75% peripartum

RISK DOUBLES WITH PROLONGED
BREASTFEEDING



Basic Principles of Use of Antiretrovirals in Pregnancy

- ARVs should be initiated in all HIV-infected pregnant women regardless of CD4+ cell count or HIV-1 RNA level **(A1)**
- Combined antepartum, intrapartum, and infant ARV prophylaxis is recommended **(A1)**
- In general, the same regimens as recommended for treatment of non-pregnant adults should be used in pregnant women unless there are known adverse effects for women, fetuses, or infants that outweigh benefits **(AII)**
- Consideration should be given to initiating cART as soon as HIV is diagnosed during pregnancy; earlier viral suppression is associated with lower risk of transmission. **(AIII)**.
- In general, HIV-infected pregnant women receiving cART who present for care in the 1st trimester should continue treatment during pregnancy, assuming the regimen is tolerated and effective **(AII)**.



Intrapartum Management

- Women should continue their antepartum combination ARV drug regimen during labor and before scheduled cesarean delivery (**AIII**).
- Intravenous (IV) ZDV should be administered to HIV-infected women with VL >1,000 copies/mL (or unknown VL) near delivery (AI)
- Women who present in labor with unknown HIV status should undergo expedited HIV testing (**AII**).
- Scheduled cesarean delivery at 38 weeks' gestation is recommended for women with HIV RNA levels >1000 copies/mL (**AI**) or unknown HIV levels near the time of delivery, irrespective of administration of antepartum antiretroviral drugs (**AII**).
- Scheduled cesarean delivery performed solely for prevention of perinatal transmission in women receiving combination antiretroviral therapy with HIV RNA \leq 1000 copies/mL is not routinely recommended (**AII**).

Drug Abbreviations

NRTI

Abacavir (ABC)
Didanosine (ddl)
Emtricitabine (FTC)
Lamivudine (3TC)
Stavudine (d4T)
Tenofovir DF (TDF)
Zidovudine (AZT, ZDV)

NNRTI

Efavirenz (EFV)
Etravirine (ETR)
Nevirapine (NVP)
Ralpivirine (RPV)

PI

Atazanavir (ATV)
Darunavir (DRV)
Fosamprenavir (FPV)
Indinavir (IDV)
Lopinavir (LPV)
Nelfinavir (NFV)
Saquinavir (SQV)
Tipranavir (TPV)

Pharmacokinetic Enhancers

Ritonavir (RTV, /r)
Cobicistat (COBI)

Entry Inhibitor

Enfuvirtide (ENF, T-20)
Maraviroc (MVC)

INSTI

Raltegravir (RAL)
Elvitegravir (EVG)
Dolutegravir (DTG)



Antiretroviral Drugs and Breastfeeding



- **Differential secretion of drugs into breast milk:**
 - If penetrate but in subtherapeutic levels?
 - If one penetrates but others do not?
 - May end up with resistant virus in milk (eg, NVP resistance higher in milk than plasma).
- **Infant exposure:** Breastfeeding infants with moms on HAART have detectable ARV levels but below therapeutic levels.
- Infant exposure gives potential protection but also exposes to potential toxicity and drug resistance if becomes infected.
- In US breastfeeding should be avoided by HIV+ mothers



Maternal Mortality and HIV

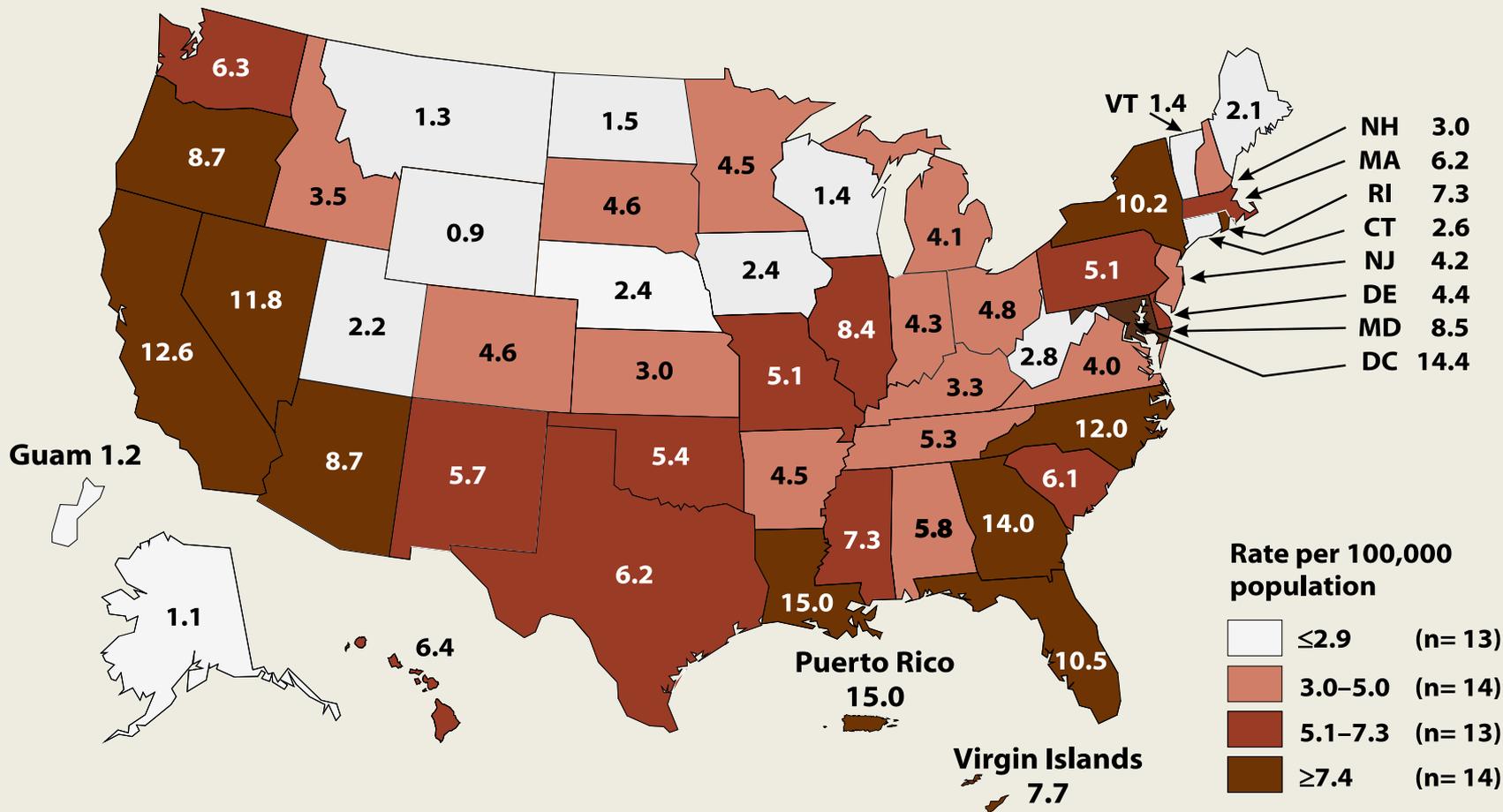
- SubSaharan Africa (1989-2012): HIV+ pregnant or postpartum women had approx. 8x higher mortality than their HIV- counterparts (Lancet 2013;381:1763)
- New York City (1995-2003): HIV associated with a 7.7 adjusted OR of maternal death during the delivery hospitalization (Obstet Gynecol 2013; 122:627)
- In a systematic review and meta-analysis, adequate adherence (>80% doses) in pregnant women dropped from 76% antepartum to 53% postpartum (Nachega. AIDS 2012;26:2039)

Websites to Access the Guidelines

- <http://www.aidsetc.org>
- <http://aidsinfo.nih.gov>

SYPHILIS

Primary and Secondary Syphilis — Rates of Reported Cases by State, United States and Outlying Areas, 2015

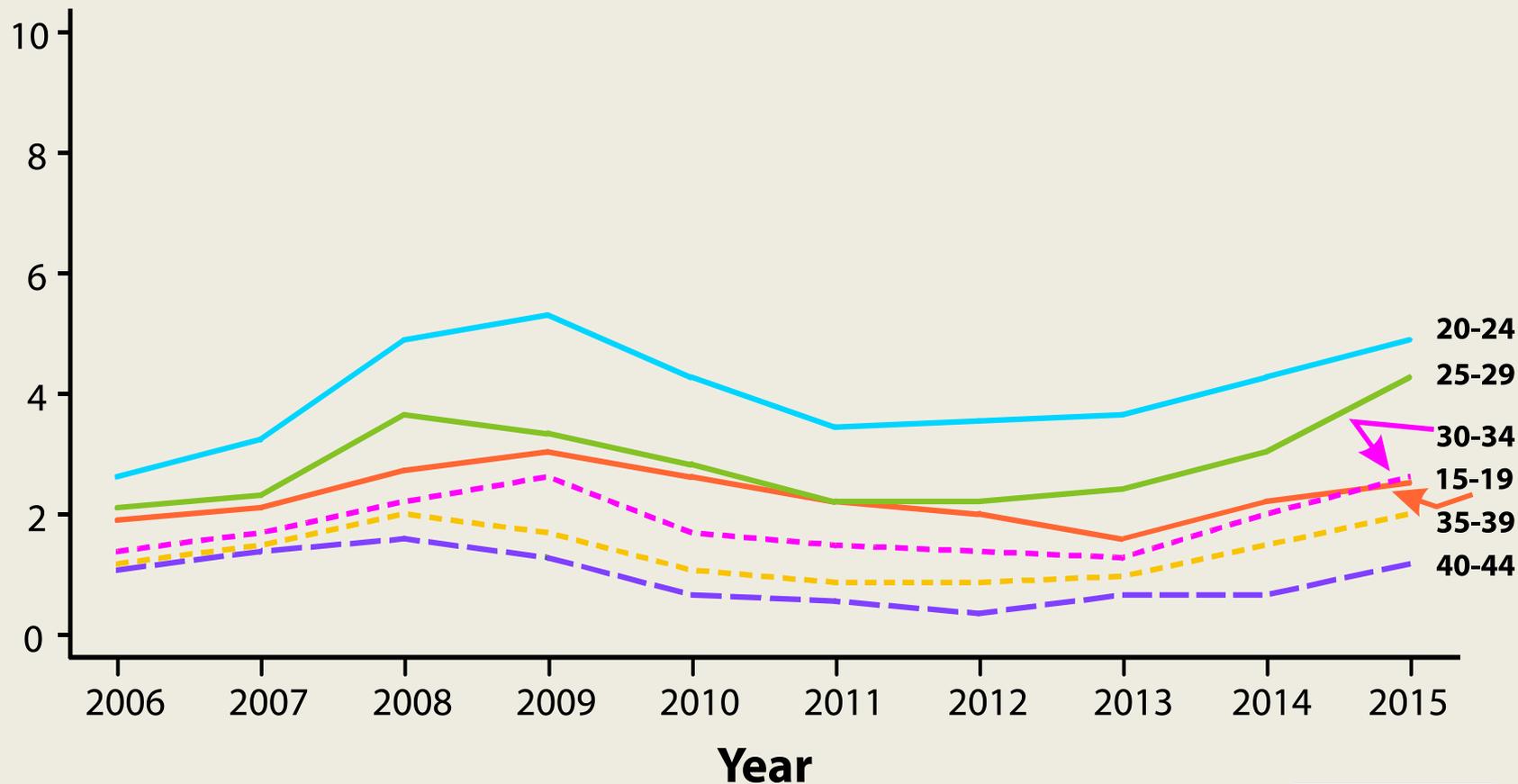


NOTE: The total rate of primary and secondary syphilis for the United States and outlying areas (Guam, Puerto Rico, and Virgin Islands) was 7.6 cases per 100,000 population.



Primary and Secondary Syphilis — Rates of Reported Cases Among Women Aged 15–44 Years by Age Group, United States, 2006–2015

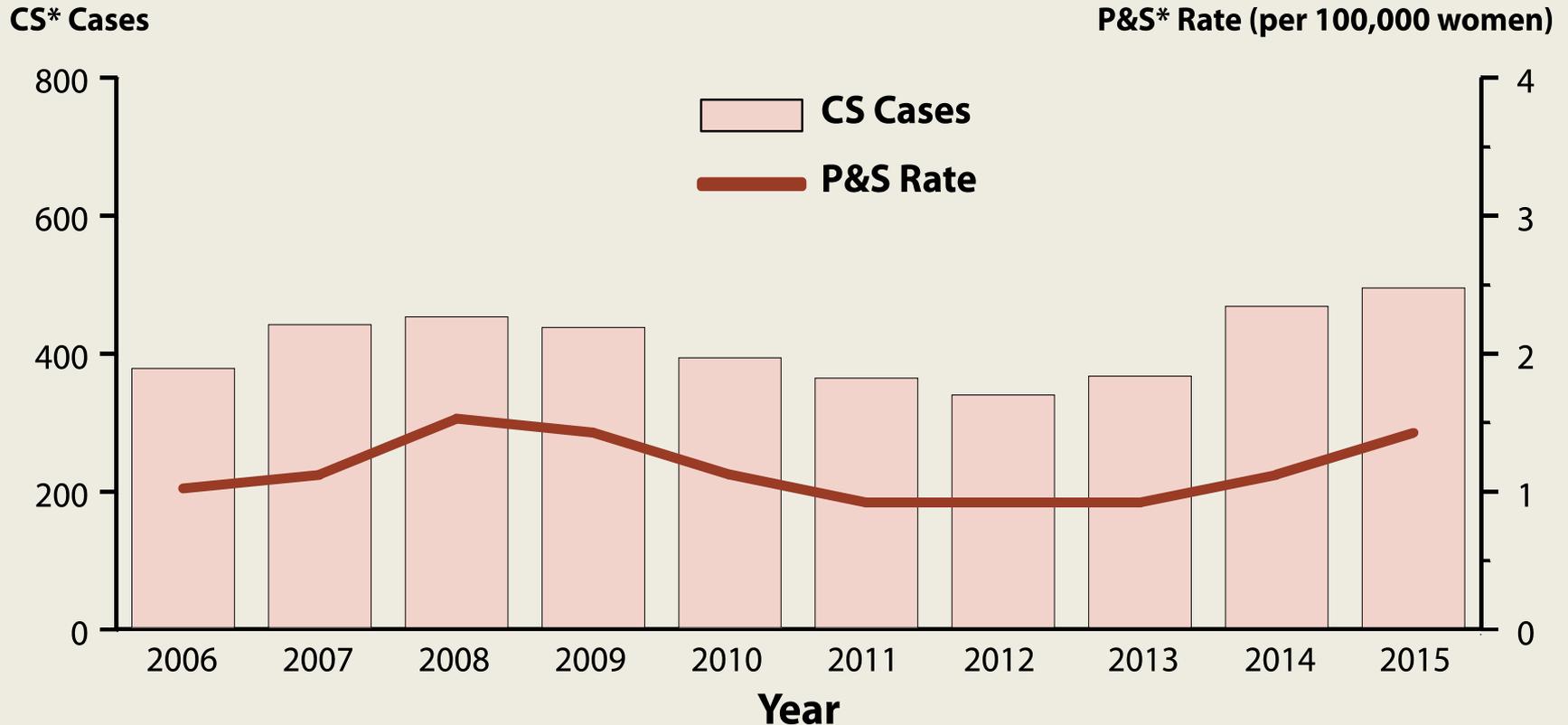
Rate (per 100,000 population)



Clinical Features

- Pregnancy has little effect on the course of syphilis
- Syphilis has a major impact on the course and outcome of pregnancy
 - Abortion and Stillbirth
 - Preterm Delivery
 - Congenital Infection

Congenital Syphilis — Reported Cases by Year of Birth and Rates of Primary and Secondary Syphilis Among Women, United States, 2006–2015



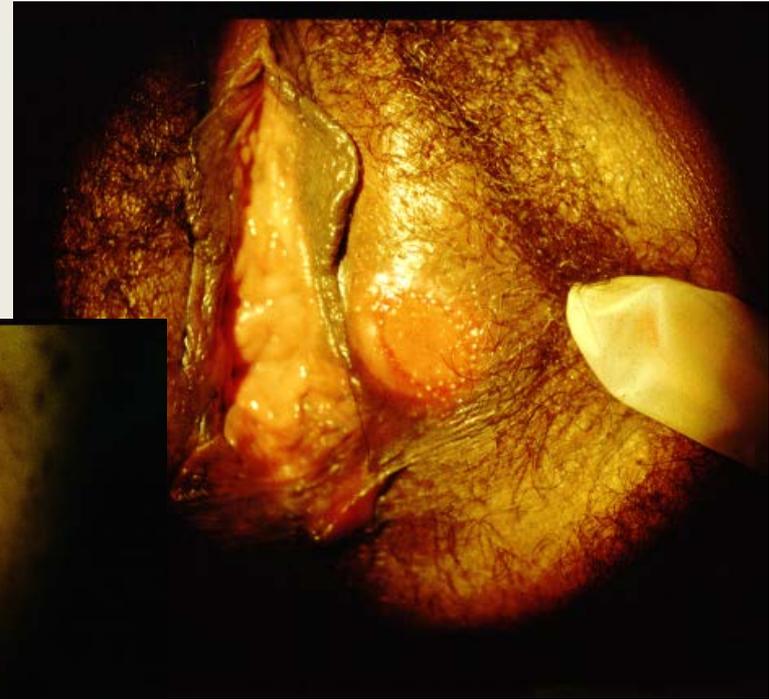
* CS = Congenital syphilis; P&S = Primary and secondary syphilis.



Why is Congenital Syphilis on the Rise?

- There was a 36% increase when comparing 2015 to 2011
 - 56% increase in primary and secondary syphilis rates during the same time period
 - 22% of the cases in 2014 had no prenatal care
 - If they had prenatal care, 43% did not receive prenatal treatment
 - 16% not tested
 - 39% seroconverted during pregnancy
 - 17% were treated <30 days prior to delivery

The only way to prevent congenital syphilis is to prevent or at least treat maternal syphilis

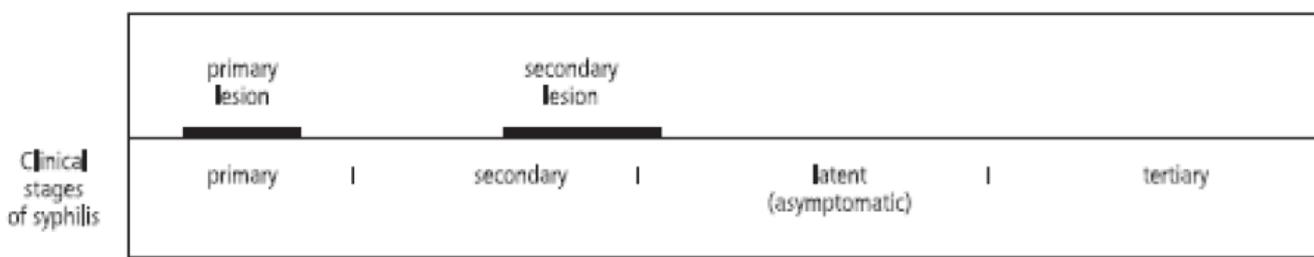
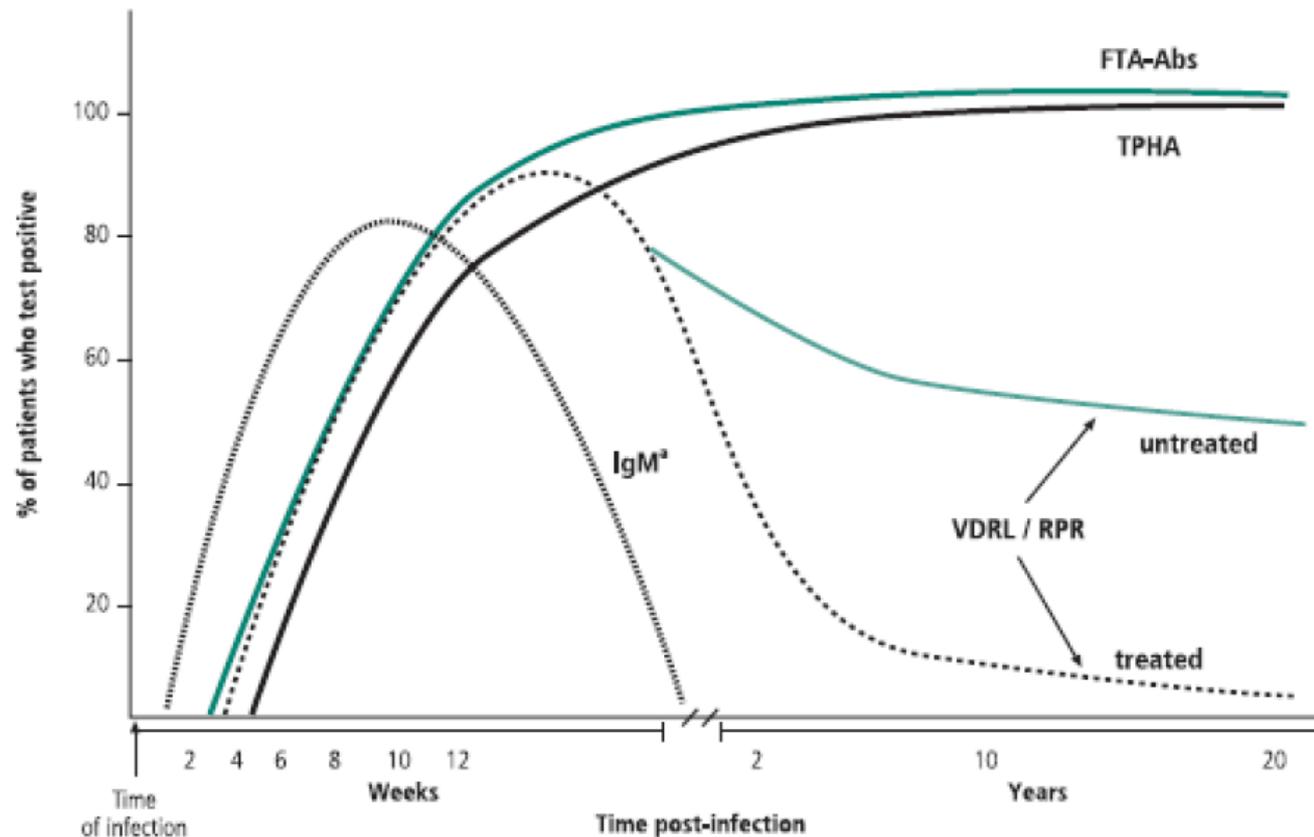






Identification of pregnant women infected with syphilis

- Screen ALL pregnant women
 - First prenatal visit
 - In high prevalence areas screen again at 28 weeks and then again at delivery
- No infant should ever be discharged from the hospital without confirmation of negative maternal serology
- Screen anyone who delivers a stillborn infant after 20 weeks gestation

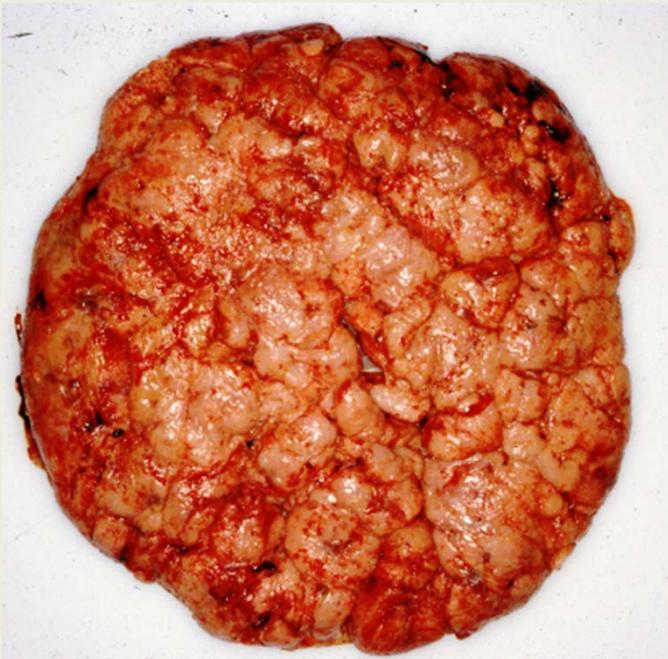


Benefits (and Problems) of Each Screening Approach

- Traditional
 - Detects active infection
 - High rate of biologic false positives so needs confirmation
 - Can miss early primary and treated infection
- Reverse sequence algorithm
 - Detects early and treated infection
 - Non-treponemal test needed to detect active infection
 - EIAs and CIAs are nonspecific with high false positive rate

Congenital Syphilis

- *T. pallidum* is transmitted across the placenta from a pregnant woman to her fetus
- May occur during any stage of syphilis and in any trimester
- Manifestations may not be noted at birth
 - Early lesions inflammatory
 - Late lesions immunologic and destructive



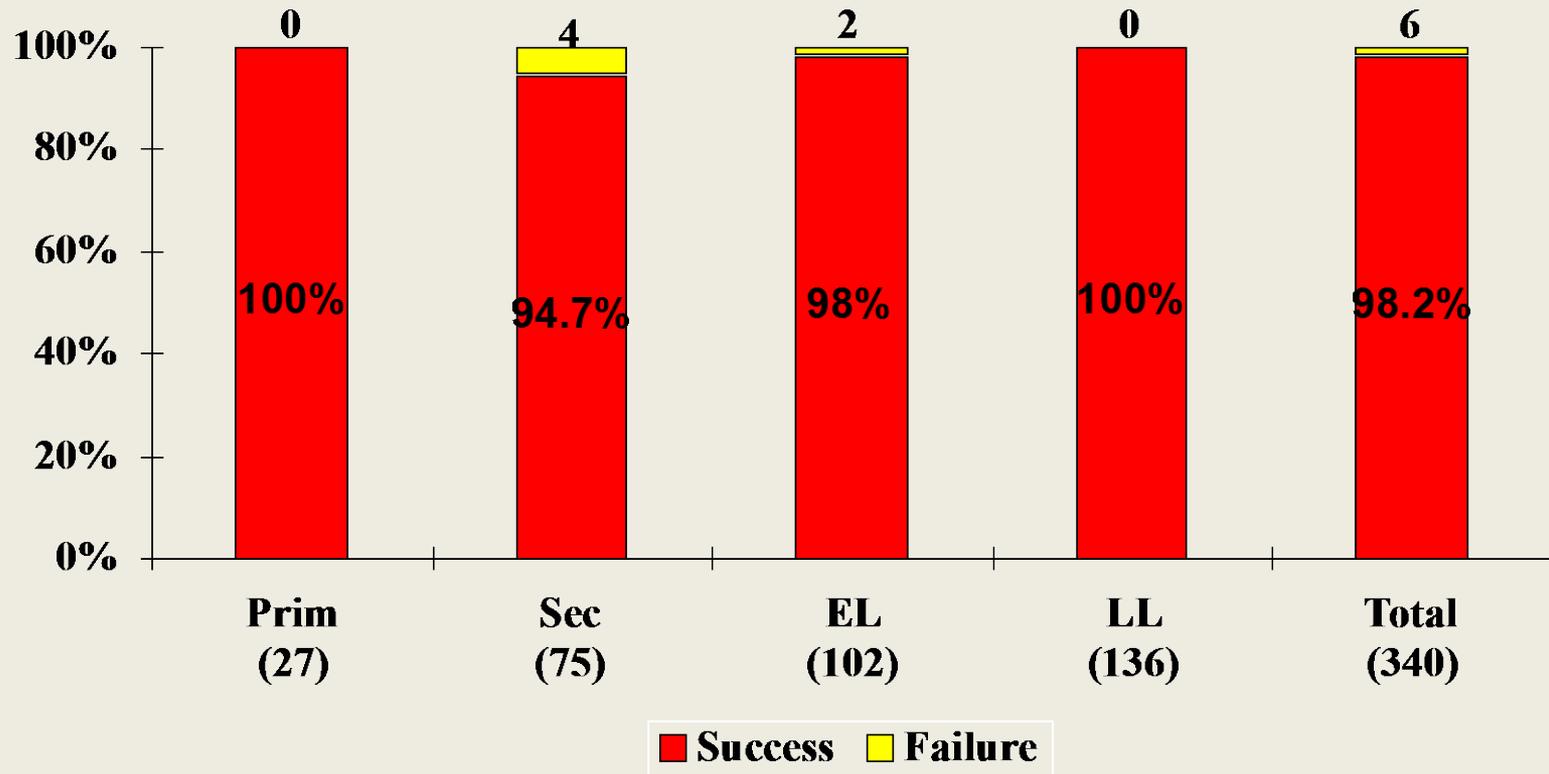
Congenital Syphilis

- The diagnosis is surprisingly difficult
 - All infants born to mothers with reactive syphilis serology should have an RPR or VDRL performed on the serum (not umbilical cord sample)
 - No adequate IgM available at this time
 - Physical exam : hydrops, HSM, jaundice, rhinitis, pseudoparalysis, skin rash
 - Examine the placenta and umbilical cord
 - Darkfield microscopy if suspicious lesions or available body fluids

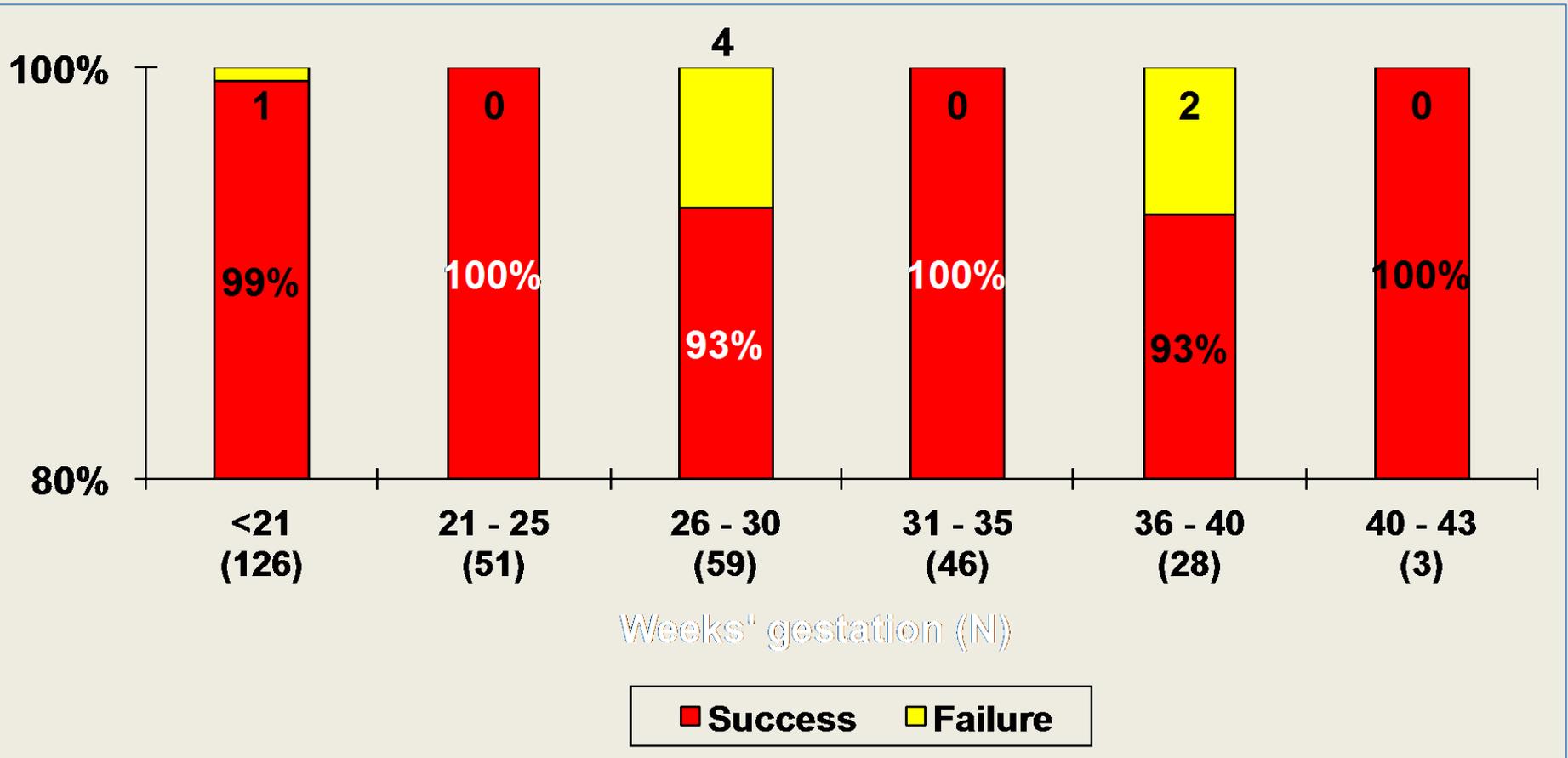
Syphilis Treatment “Updates”

- Treatment – no updates. PCN still treatment of choice for pregnant women
 - Some evidence suggests that additional therapy is beneficial for pregnant women. For women who have primary, secondary, or early latent syphilis, a second dose of benzathine penicillin 2.4 million units IM can be administered 1 week after the initial dose

Syphilis Therapy Efficacy by Stage



Syphilis Treatment Efficacy by Gestational Age



ZIKA

At a Glance – Zika in the US

April 12th, 2017

- **US States**

- Travel-associated cases reported: 4,935
- Locally acquired vector-borne cases reported: 223
- Total: 5,234
 - Sexually transmitted: 46

- **US Territories**

- Travel-associated cases reported: 143
- Locally acquired cases reported: 36,383
- Total: 36,526

Persistence of Zika Virus in Body Fluids — Preliminary Report

Gabriela Paz-Bailey, M.D., Ph.D., Eli S. Rosenberg, Ph.D., Kate Doyle, M.P.H.,
Jorge Munoz-Jordan, Ph.D., Gilberto A. Santiago, Ph.D., Liore Klein, M.S.P.H.,
Janice Perez-Padilla, M.P.H., Freddy A. Medina, Ph.D.,
Stephen H. Waterman, M.D., M.P.H., Carlos Garcia Gubern, M.D.,
Luisa I. Alvarado, M.D., and Tyler M. Sharp, Ph.D.

- Prospective cohort study in Ponce, Puerto Rico
- Serum, urine, saliva, semen and vaginal secretions collected serially in patients with acute Zika infection by PCR
- Time until loss of Zika RNA detection
 - Serum: median 14 days [11 to 17 days] with 95% 54 days
 - Urine: median 8 days [6 to 10 days] with 95% 39 days
 - Semen: median 34 days [28 to 41 days] with 95% 81 days
 - Rarely found in saliva and vaginal secretions
- Unanswered question: Does Zika RNA detection correlate with infectivity

Zika Virus Infection

- Only 20% of infected individuals develop symptoms
 - Acute onset fever, maculapapular rash, arthralgias (joint pain) and conjunctivitis are the big 4
 - Myalgias, headache, retro-orbital pain, pruritis and vomiting



Congenital Zika Syndrome

- Pattern of birth defects in fetuses and infants infected with Zika virus during pregnancy



Brazilian Ministry of Health Task Force Findings

- The initial 35 infant cohort (≤ 2 SD)
 - All mothers lived in or traveled to endemic areas
 - 74% had a rash in first or second trimester
 - 71% severe microcephaly ≥ 3 SD
 - 49% had at least one neurologic abnormality
 - 27/35 infants had neuroimaging and 100% were abnormal
 - Brain calcifications, cell migration abnormalities, cortical/subcortical atrophy

Congenital ZIKV Infection

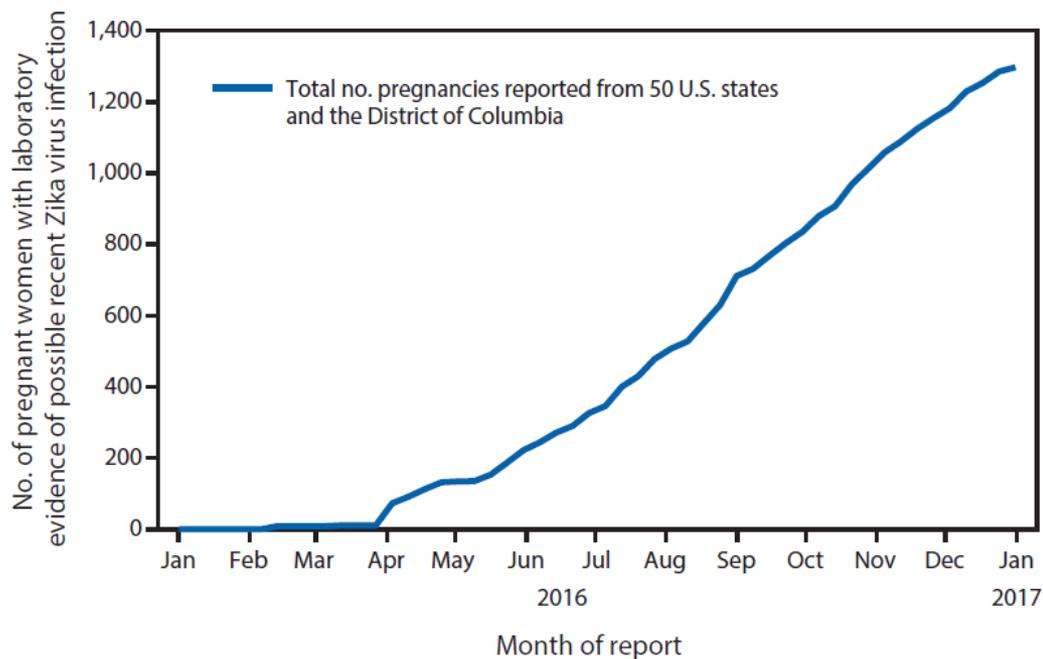
- Microcephaly
- Brain atrophy
- Ventricular enlargement
- Intracranial calcifications
- Ocular defects
- Joint contractures
- Hydrops fetalis
- Absence of the corpus callosum
- Vermian agenesis
- Ageneration of the thalami
- Cataracts
-



Vital Signs: Update on Zika Virus–Associated Birth Defects and Evaluation of All U.S. Infants with Congenital Zika Virus Exposure – U.S. Zika Pregnancy Registry, 2016

Weekly / April 7, 2017 / 66(13):366-373

- U.S. Zika Pregnancy Registry
 - Laboratory evidence of possible recent Zika virus infection (mother, placenta or fetus/neonate)
 - 12/1/2015 through 12/27/2016 completed pregnancies
 - 1,297 pregnancies from 44 States
 - 972 completed pregnancies with reported outcomes (895 Liveborn and && pregnancy loss)

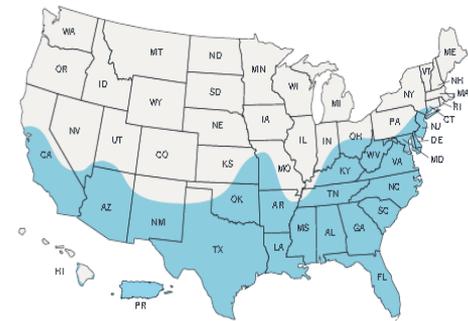
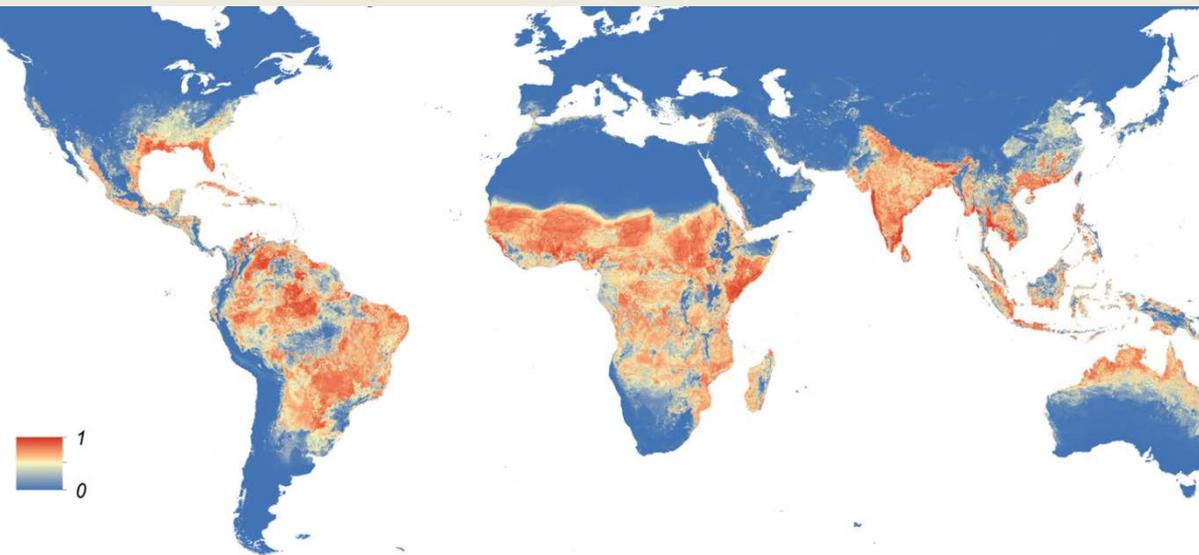


- Overall **5%** of the completed pregnancies were affected with CZS if lab evidence of possible infection
 - **6%** of symptomatic moms and **5%** asymptomatic moms
 - **9%** First trimester exposure
- If there was confirmed evidence of Zika infection, **10%** of the infants had CZS
 - **15%** if exposure in the first trimester
- **30** times higher than the pre-Zika years

Pregnancy Effects

- Unknown if pregnant women are more susceptible
- Disease does not appear to be any worse in pregnancy
- Transmission to the fetus has been documented in all trimesters
 - Zika RNA in abortus tissues, AF, placenta and term neonates

Global *Aedes aegypti* Distribution Predicted the Spread of Zika Virus



■ *Aedes aegypti* ■ *Aedes albopictus*



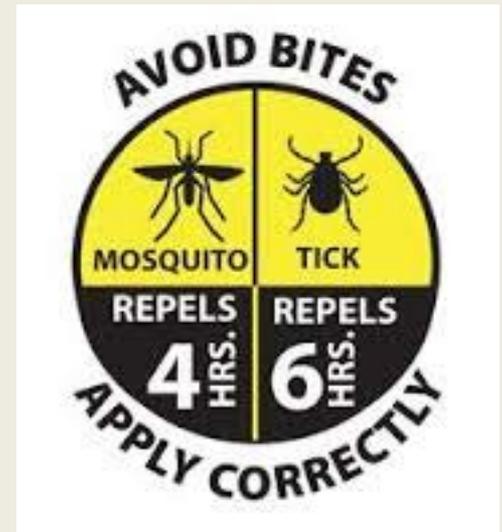
Aedes aegypti mosquitoes are more likely to spread viruses like Zika, dengue, chikungunya and other viruses than other types of mosquitoes such as *Aedes albopictus* mosquitoes.

- These maps DO NOT show**
- Exact locations or numbers of mosquitoes living in an area
 - Risk or likelihood that these mosquitoes will spread viruses
- These maps show**
- CDC's best estimate of the potential range of *Aedes aegypti* and *Aedes albopictus* in the United States
 - Areas where mosquitoes are or have been previously found

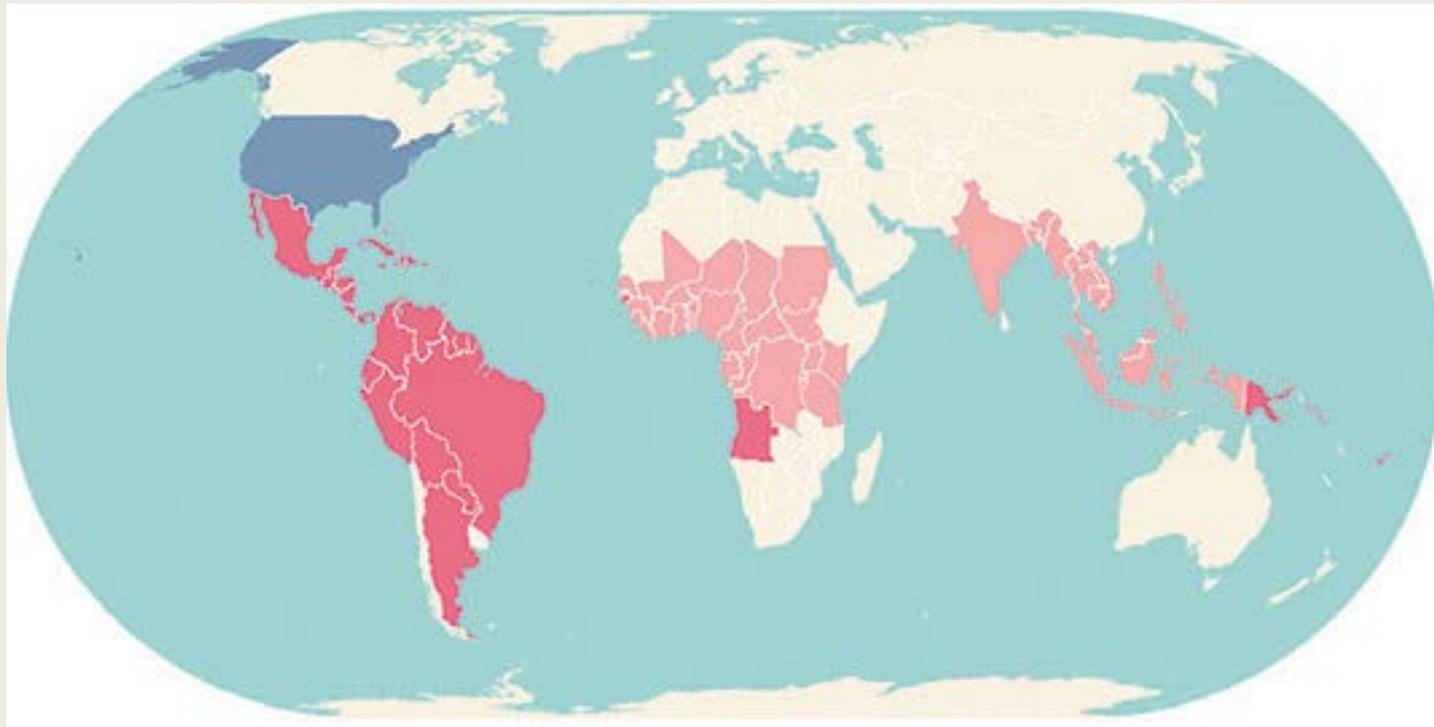
* Maps have been updated from a variety of sources. These maps represent CDC's best estimate of the potential range of *Aedes aegypti* and *Aedes albopictus* in the United States. Maps are not meant to represent risk for spread of disease.

Recommendations for Pregnant Women

- CDC Recommends all pregnant women consider postponing travel to areas of ongoing Zika virus transmission if possible
 - <http://wwwnc.cdc.gov/travel/notices>
- If pregnant women have to travel, avoid mosquito bites
 - Protective clothing
 - U.S. EPA-registered insect repellent
 - Screened-in or air-conditioned areas



Use EPA regulated insect repellent.
Both DEET and Picardin are safe in pregnancy in appropriate dosing

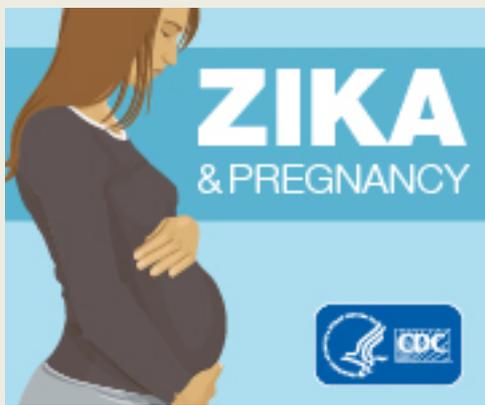


CDC Zika travel notice:

1. Females should wait at least **8 weeks** after last possible exposure or after symptoms start
2. Males should wait at least **6 months** after last possible exposure or after symptoms start

Risk of Zika but no CDC Zika travel notice:

1. Discuss with the health care provider regarding the limited information
2. If women or men develop symptoms c/w Zika or test positive, follow the recommendations above



CDC recommends special precautions for pregnant women and women trying to become pregnant

Pregnant?

Pregnant women and their male partners should strictly follow steps to prevent mosquito bites.

If you have a male sex partner who lives in or travels to an area with Zika, you should use condoms the right way every time you have sex, or do not have sex during the pregnancy.

If you develop the symptoms of Zika, see a healthcare provider right away for testing.



Trying to become pregnant?

Women trying to become pregnant and their male partners should strictly follow steps to prevent mosquito bites.

Talk to your healthcare provider about plans to become pregnant.

Your Best Protection: Prevent Mosquito Bites

Clothing

- Wear long-sleeved shirts and long pants.
- Treat clothing and gear with permethrin or purchase permethrin-treated items.
 - » Treated clothing remains protective after multiple washings. See product information to learn how long the protection will last.
 - » If treating items yourself, follow the product instructions carefully.
- Do NOT use permethrin products directly on skin. They are intended to treat clothing.



Indoor Protection

- Stay in places with air conditioning or that use window and door screens to keep mosquitoes outside.
- Sleep under a mosquito bed net if air conditioned or screened rooms are not available or if sleeping outdoors.



Repellent

Use Environmental Protection Agency (EPA)-registered insect repellents. When used as directed, these insect repellents are safe and effective for pregnant and breastfeeding women.

- Always follow the product label instructions.
- Reapply as directed.
- Do not spray repellent on the skin under clothing.
- If you are also using sunscreen, apply sunscreen before applying insect repellent.



www.cdc.gov/zika

CDC's Response to **Zika**

PREGNANT? Read this before you travel



What we know about Zika

- Zika can be passed from a mother to her fetus during pregnancy.
- Infection with Zika during pregnancy is linked to birth defects in babies.
- Zika is spread mostly by the bite of an infected *Aedes* species mosquito.
 - » These mosquitoes are aggressive daytime biters. They can also bite at night.
- There has been no local transmission of Zika in the continental US.
- There is no vaccine to prevent or medicine to treat Zika.
- Zika can be spread by a man to his sex partners.



What we don't know about Zika

- If there's a safe time during your pregnancy to travel to an area with Zika.
- If you do travel and are infected, how likely it is that the virus will infect your fetus and if your baby will have birth defects from the infection.

Travel Notice

CDC has issued a travel notice (Level 2-Practice Enhanced Precautions) for people traveling to areas where Zika virus is spreading.

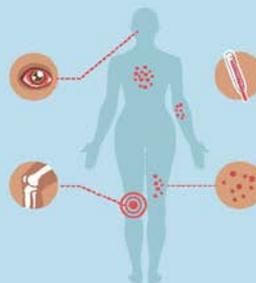
- For a current list of places with Zika outbreaks, see CDC's Travel Health Notices: <http://wwwnc.cdc.gov/travel/page/zika-travel-information>
- This notice follows reports in Brazil of microcephaly and other poor pregnancy outcomes in babies of mothers who were infected with Zika virus while pregnant.

Symptoms of Zika

About 4 out of 5 people with Zika won't even know they have it. The illness is usually mild with symptoms lasting for several days to a week.

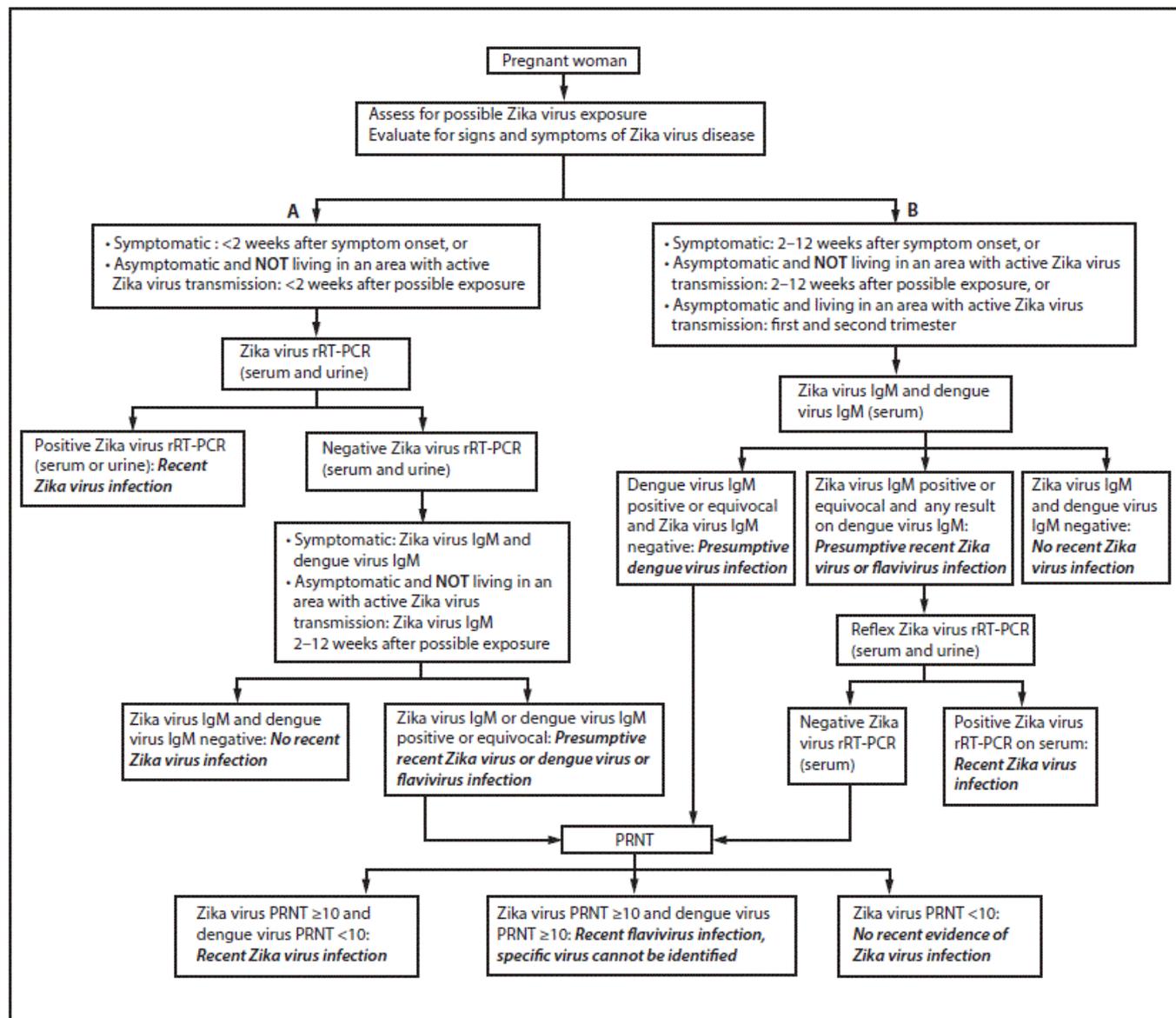
The most common symptoms of Zika are:

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



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

FIGURE. Updated interim guidance: testing and interpretation recommendations*†.§¶ for a pregnant woman with possible exposure to Zika virus – United States (including U.S. territories)**





Clinical management of a pregnant woman with suspected Zika virus infection

- Serial ultrasounds every 3-4 weeks to assess fetal anatomy and growth
 - Amniocentesis should be individualized if imaging suspicious for fetal infection.
 - Assay performance for amniotic fluid is uncertain at this time

HERPES SIMPLEX VIRUS

HSV-2 Seroprevalence: US 2005-2008

(MMWR 2010;59(15):456)

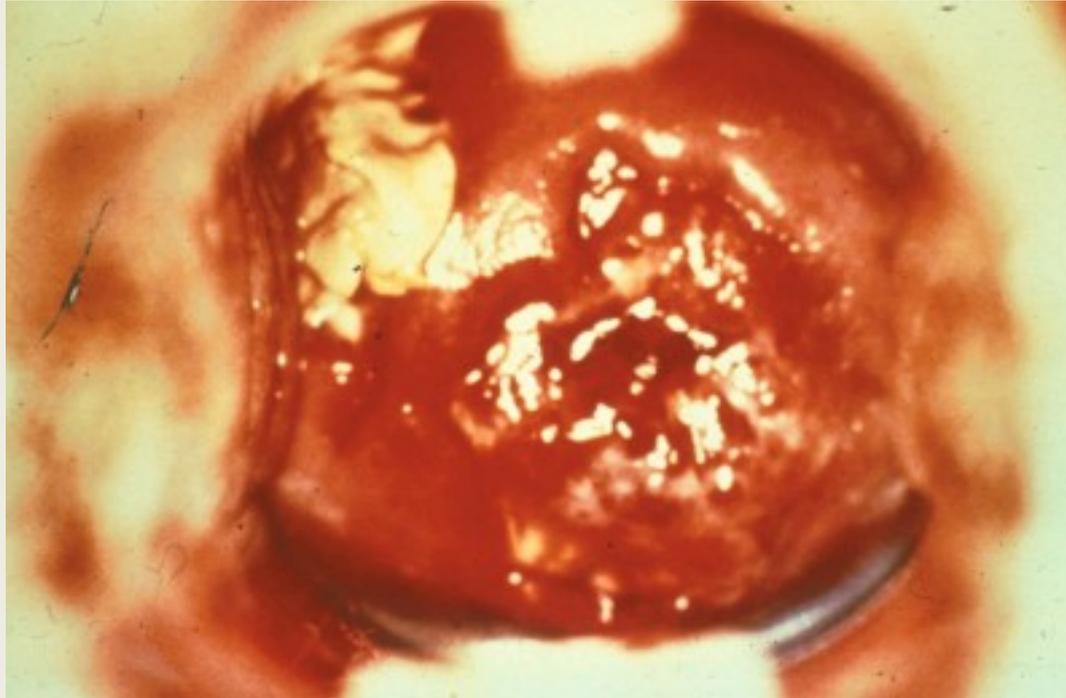
	Female %	Male %
Total	20.9	11.5
14-19 yrs	2.1	0.8
20-29 yrs	14.4	6.6
30-39 yrs	25.2	13.9
40-49 yrs	32.3	19.6
White	15.9	8.7
Black	48.0	29.0
Mexican-American	13.2	7.5

Genital Herpes: Periurethral Lesions



Source: Cincinnati STD/HIV Prevention Training Center

Herpes cervicitis



Types of Infection

Infection Type	Lesions/ Symptoms	Type-specific antibody at time of presentation	
		HSV-1	HSV-2
First episode, Primary (Type 1 or 2)	+/Severe, bilateral	-	-
First episode, Non-primary Type 2	+/Moderate	+	-
First episode, Recurrence Type 2	+/Mild	+/-	+
Symptomatic, Recurrence Type 2	+/Mild, unilateral	+/-	+
Asymptomatic, Infection Type 2	-	+/-	+

Uses of Type-specific Serologic Tests

- Type-specific serologic assays might be useful in the following scenarios:
 - Recurrent or atypical genital symptoms with negative HSV cultures
 - A clinical diagnosis of genital herpes without laboratory confirmation
 - A sex partner with herpes

Genital Herpes in Pregnancy

- Incidence in pregnancy ~2%
 - 10% women HSV-2 Ab negative have partners HSV-2+
 - HSV-1 increasing in genital tract (up to 80% new genital infections)
- Neonatal HSV usually acquired during intrapartum period with exposure to virus in genital tract; in utero, postnatal infections rare
 - Risk for transmission to neonate is high (30%-50%) among women who acquire genital herpes near the time of delivery
 - Risk is low (<1%) in women with histories of recurrent herpes at term or who acquire genital HSV during the first half of pregnancy
 - Approx 80% of infected infants born to mothers with no reported hx HSV

Neonatal HSV

- Disseminated (25%): 30% mortality
- CNS (30%): 4% mortality
- Disease limited to skin, eyes, mouth (45%)

- Approximately 20% of survivors of neonatal HSV have long-term neurologic sequelae



HSV in Pregnancy

- Routine HSV screening of pregnant women not recommended
- Suspected HSV should be confirmed with viral detection test (culture or PCR) or serology (type specific antibodies)
- Can treat HSV outbreaks in pregnancy; suppressive therapy reduces clinical recurrences at delivery (75%) and need for C/S
 - Offer suppression at or beyond 36 wk gestation
 - No evidence of increase in fetal adverse effects from ACV, VCV



HSV in Pregnancy

- C-section indicated in women with active genital lesions or prodromal symptoms (itching/burning/pain)
 - C-section not recommended for nongenital lesions, but cover with occlusive dressing
- BF not contraindicated but if herpetic lesions anywhere on body, take extra precautions with handwashing

GONORRHEA/CHLAMYDIA

Gonorrhoea in Pregnancy

- Adverse pregnancy outcomes: PTL/PROM, LBW, chorioamnionitis, Sab 2-5x increased) ; coinfection with CT common
- Adverse fetal outcomes:
 - Prematurity-~20%
 - Perinatal transmission 30-40%
 - Ophthalmia neonatorum-most frequent site of infection; neonatal prophylaxis recommended routinely for prevention
 - Localized infection: pharynx, vagina, urethra, scalp abscess
 - Disseminated infection: sepsis, meningitis, arthritis
- Treatment: ceftriaxone + azithromycin

Chlamydia trachomatis and Pregnancy

- Prevalence in pregnancy 2-20%
- Adverse pregnancy outcomes: PTL/PROM
- Perinatal transmission: ~50% but up to 70% (includes asx infection)
 - Conjunctivitis: in sx infants 20-50%
 - Standard neonatal eye prophylaxis not effective in prevention
 - Pneumonia: in sx infants 5-30%
- Treatment: Azithromycin; doxy, levo/oflox, erythromycin contraindicated in pregnancy

TRICHOMONIASIS

Trichomoniasis in Pregnancy

- Associated with adverse pregnancy outcomes
 - PROM
 - PTL
 - LBW
- Metronidazole is recommended regimen_ single dose or multidose--safe

Table 1: Overview and characteristics of diagnostic assays for *Trichomonas vaginalis**

Diagnostic Test	Technique	Time to Result	Specimen	Sensitivity	Specificity	Comments
Wet mount	Microscopic visualization	Minutes	Vaginal or urethral discharge	51–65%	up to 100%	Inexpensive; technician-dependent
Culture	Culture media	24–120 hours	Vaginal or urethral swab	75–96%	up to 100%	Considered diagnostic gold standard in the past
OSOM Trichomonas Rapid Test	Immunochromatographic capillary-flow enzyme immunoassay dipstick	10 minutes	Vaginal swabs or saline for wet mount	82–95%	97–100%	CLIA-waived for females; can be used at the point-of-care
Affirm VPIII Microbial Identification Test	Nucleic acid probe test	45 minutes	Vaginal swabs	63%	99.9%	Moderately complex same-day test; FDA-cleared for use with specimens from females; also detects <i>Gardnerella vaginalis</i> and <i>Candida albicans</i>
APTIMA Trichomonas vaginalis Assay	Transcription Mediated Amplification (TMA)	Hours	Urine specimens, endocervical and vaginal swabs, and specimens collected in PreservCyt Solution	95–100%	95–100%	NAATs are the most sensitive tests; FDA-cleared for use with specimens from symptomatic or asymptomatic females

HEPATITIS B



HBV and Pregnancy

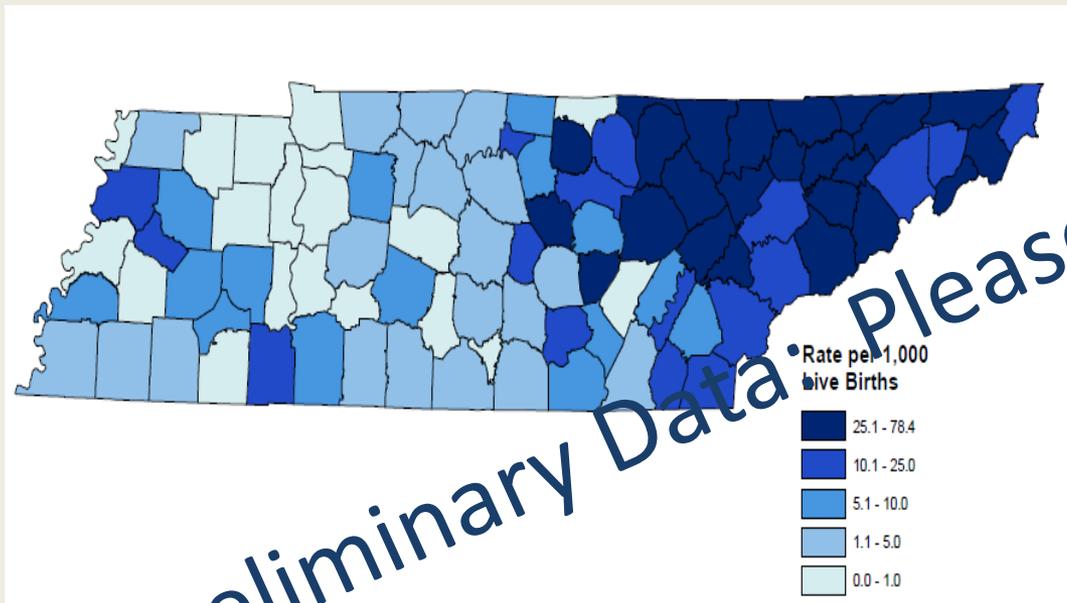
- HBV vaccine should be given to nonimmune pregnant women
- Infants: HBV vaccination beginning at birth for all, HBIG to infants born to HBsAg+/unknown status mothers
- Chronic HBV may increase risk of GDM, APH, PTL but HBV disease activity generally stable in pregnancy but may be at risk for reactivation in PP period
 - Assess HBV VL, LFTs-follow with ID/GI specialist for treatment considerations
 - Transmission mainly intrapartum/after birth; acute HBV in 3rd trim associated with 60-90% risk transmission; increased risk with +HBeAg (70-90%), increased HBV VL
 - BF not contraindicated

HEPATITIS C

HCV and Pregnancy

- HCV increasing, with greatest increase among persons 20-39 yrs, approx 50% are women
 - 2010-2014: ~2.6x increase in reported cases acute HCV
 - 2014: HCV detection in women 15-44: 169/100,000
 - Est. 29,000 HCV+ women gave birth to 1700 HCV-infected infants each yr 2011-2014
- HCV perinatal transmission ~5%, risk doubled with HIV co-infection; risk varies with HCV viral load and increases with prolonged ROM
- No current interventions in pregnancy proven to reduce transmission
- DAAs not recommended in pregnancy due to lack of safety/efficacy data

Births to HCV-Infected Mothers – Tennessee, 2014*



Preliminary Data. Please do not cite

- Variation among 95 counties
 - Highest rates in Appalachian counties (Eastern TN)
- Surveillance to identify high-risk populations and areas

*Tennessee Vital Records
Patrick et al, MMWR 2017



STI Screening in Pregnancy: CDC Recommendations

- Chlamydia: all <25 yrs or older if at increased risk; retest 3rd trimester if <25 yr or at risk; TOC 3-4 wks after treatment and retest w/n 3 mo.
- GC: all <25 yrs or older if at increased risk; retest 3 mo after treatment
- Syphilis: all at 1st PNV; retest early 3rd trimester and at delivery if at high risk

STI Screening in Pregnancy: CDC Recommendations

- Trich: consider in high prevalence settings/women at high risk; at least annually for HIV+
- HSV: type specific Ab test may be useful to ID pregnant women at risk
- HIV: screen at 1st PNV, retest 3rd trimester if at high risk/high prevalence setting
- HBV: HBsAg at 1st PNV, retest at delivery if at high risk
- HCV: test HCV Ab if risk factors present

