Pediatric and Adolescent HIV Update: 2016

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Some HIV History

- Early 1980's, HIV was identified as a "new" viral infection
  - Risk factors were IVDU, STI and Perinatal Transmission
- 076…Decreased transmission to infants from 24-40% to 8%
  - "New ACTG 076 Analysis Emphasizes Importance of Offering AZT Therapy

    to All HIV-Infected Pregnant Women"
- Early 1990's Protease inhibitors discovered
  - cART plus 076 have resulted in less than 1% mother-to-infant HIV transmission

UPDATE: 2015

- So now HIV is preventable and treatable, if not yet curable
- BUT….there are new challenges

To get to 90, 90, 90 ...

Need 90% of people with HIV to know their diagnosis

Need 90% of those diagnosed to be in care

Need 90% of those in care to have a viral load below limit of detection

Challenges?

Rates of Teen and youth HIV very high

Especially among African American MSM

We are now seeing, however, a rise in new infections among young women

In our youth clinic (13-24 years) women account for 1 out of every four cases

Childbearing Women and HIV

- Approximately one in four people living with HIV infection in the United States are women
  - Most new HIV infections in women are from heterosexual contact (84%)
  - An estimated 88% of women who are living with HIV are diagnosed, but only 32% have the virus under control
- 6,000 to 7,000 HIV-positive women deliver annually
  - Fewer than 200 HIV infected infants are born in the US each year
  - 40% of HIV-infected infants born to mothers with unknown status

http://aidsinfo.nih.gov/education-materials/fact-sheets/24/71/preventing-mother-to-child-transmission-of-hiv-after-birth

Risk Factors for Transmission

Known risk factors

- High maternal viral load
- Viral genotype/phenotype
- Advanced maternal HIV disease
- Low CD4 count/percent
- Vaginal delivery
- Membrane rupture > 4 hours
- Delivery at < 37 weeks
- Breastfeeding

Suggestive, but not conclusive

- Genetic factors
- Immature immune system in infant
- Increased viral strain diversity
- Maternal neutralizing antibody
- Illicit drug use during pregnancy
- Frequency of unprotected sexual
- Multiple sex partners during pregnancy
- Maternal nutritional status
- Anemia during pregnancy
- Cigarette smoking
- Chorioamnionitis
- Abruptio placentae
- Placental *P. falciparum* infestation
- Syphilis and other STD
- Fetal scalp electrodes
- Episiotomy and vaginal tears

Reducing Risk for Transmission

Breast-feeding mothers

Overall risk: 20-45%

Among transmissions:

- **In utero: 15-25%**
- **Intra partum: 35-45%**
- **Breast feeding: up to 40%**

Targeting with all interventions reduces transmission risk to <5%

Non-breast feeding mothers

Overall risk 15-30%

Among transmissions:

- **In utero: 25-40%**
- **Intra-partum: 60-75%**

Targeting with all interventions reduces transmission risk to <2%

- **Understanding the timing of perinatal HIV infection is of great clinical relevance for implementing cost-effective prophylaxis**
  - **Studies suggest that most HIV transmission occurs very late in gestation**

How Important is Maternal Viral Load?

- Maternal HIV-1 RNA level is strongly correlated with risk of transmission
- RNA level near the time of delivery is an important predictor of transmission even among women who are receiving antiretroviral therapy
- The threshold below which transmission does not occur has not been determined
- Which HIV + mothers need c-section, and which infants additional drugs?

CHANGES...

- Threshold for additional prophylaxis for infants has changed
- Exposed infants born to women with controlled HIV VL receive 4 weeks of zidovudine (not six).
- VL over 1000?
- High risk (no meds, newly identified, other infection) consider adding nevirapine

Standards for ART in Pregnancy

- cART starts after 12 weeks gestation
  - Include AZT in regimen if possible
  - Women already on ARVs when pregnancy diagnosed may continue or may interrupt during 1st trimester
  - Add IV AZT during labor
- Infant receives 4 weeks of oral AZT
- Most women will continue on ART after delivery
  - cART is currently recommended for all HIV-infected individuals to reduce the risk of disease progression and to prevent HIV sexual transmission, although the strength and evidence for this recommendation varies by pre-treatment CD4 T lymphocyte (CD4) count

Antiretroviral Therapy in Pregnancy

- **Mother: Start treatment by 12-14 weeks of pregnancy**
  - **Combivir (zidovudine + lamivudine) and Kaletra (lopinavir/ritonavir)**
  - **Truvada and Reyataz with Norvir boost**
  - **Other medications may be used in case of drug toxicity or drug resistance**
  - **ADD IV Retrovir (zidovudine) during labor or prior to elective C-section if VL is > 1,000 copies**
- **Newborn: Oral Retrovir (ZDV) for 4 weeks**

DHHS Perinatal HIV Guidelines May 24, 2014

Antiretroviral Therapy in Pregnancy: Protective Benefits to the Infant

- Mechanisms of protection:
  - Reduce maternal plasma viral load by using combination antiretroviral therapy (cART)
    - Reduce infant in utero exposure
  - Reduce genital viral load
    - Reduce infant viral exposure in birth canal
  - Drugs crossing the placenta provide infant pre- and post-exposure prophylaxis

After the Birth: Babies Born to Mothers whose Status is Unknown

Routinely test the infant, with maternal consent

Missed Opportunities

In the past 5 years in southeast Michigan

seven infants and toddlers have been diagnosed with HIV/AIDS

- All seven Moms tested HIV-negative early in pregnancy
- All seven Moms were infected while pregnant
- All seven Moms were teens/young adults

State guidelines recommend testing all women:

- As early as possible in pregnancy, and
- Early in the third trimester, and
- At delivery, if mother has risk factors

but not everyone is on board

- Two 6 month old infants and their moms were diagnosed in December 2014

What does this mean?

- Increased prevalence of HIV in the Metropolitan Detroit Area and across Michigan
  - Michigan is among the states with the highest incidence of HIV in teens and young adults in the country

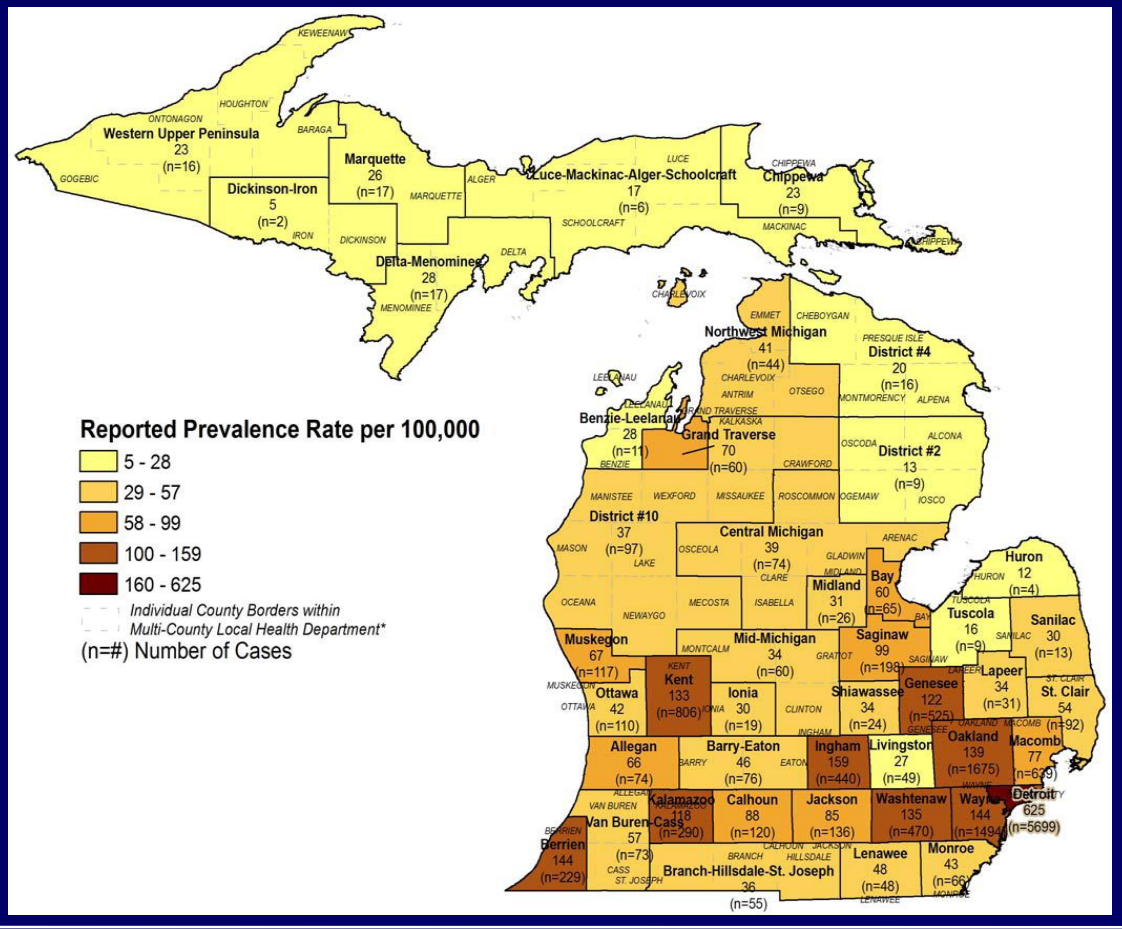
Statistics

MDHHS reports that the infection rate for black youth (13-24) in Detroit is among the highest in the nation

Young MSM of color comprise 70% of those with HIV

Detroit is not alone:

Reported HIV Prevalence and Prevalence Rates by Residence at Diagnosis



January 1, 2011

Other Changes in the Epidemic among Youth

- We continue to have about 50-60 new youth referrals yearly to our clinic (13-24 years)
- Increase in number of perinatally infected kids reaching young adulthood
  - Several of our perinatally infected kids now have kids of their own: Most are healthy

BUT…

- We are seeing something we hoped would never happen : Three of our perinatal clients have infected children due to their Moms' non-adherence to ART

Who to test..

- Anyone over 13:
  - Offer testing at every visit
  - We have a great deal of push-back to offering HIV testing to teen at ER visits in Pediatric ERs

WHY?

As you have seen from missed opportunities we forget or do not want to think about certain person as being at risk (having sex)

- Oddly, pregnant women are one of those groups
- Adolescents are another

ER

- Our adult ER offers HIV testing to everyone
- Until a short time ago our Pediatric ER offered HIV testing to only about half of youth with other STIs
- Now we miss none of those clients, but routine testing still a hard sell..
- To the providers!

Routine?

Yearly for all persons 13 years and older and at all ER visits

AT LEAST TWICE FOR ALL PREGNANT WOMEN...1st visit and THIRD TRIMESTER OR AT DELIVERY

ALSO…

We need to add syphilis and hepatitis B and C to that testing for the pregnant women

We are seeing congenital syphilis again

And what about those 7 babies with perinatal HIV?

We initially missed three of these four babies because we don’t think about HIV in kids anymore

- We need to remember the old days

When to TEST Babies for HIV

- Failure to thrive
- Nephrotic Syndrome
- Persistent thrush
- Hyper- or Hypo-gammaglobulinemia
- TB
- Recurrent sinus and ear infections
- Enough infections for an immune deficiency work? Include HIV
- Mom’s HIV status is unknown

Summary

- HIV is a treatable…but not that easy…chronic disease
- Increasing incidence in teens and young adults
- Missing infection in babies and in teens/young adults is a problem
- TEST

Routine ...

Routine testing is the key to reaching 90...

Thank you!