

Neonatal Herpes Surveillance

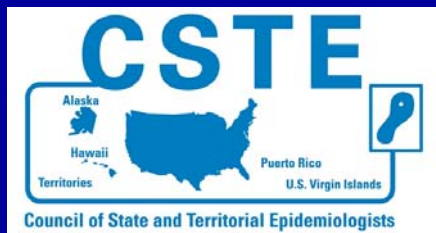
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11:30 a.m. - 12:30 p.m.



Herpes Simplex Virus



- Common in the United States
 - At least 50 million people in the US have a genital herpes simplex virus (HSV) infection.
- HSV-2 causes approximately 80% of all genital herpes cases in women
 - Around 1 in 4 women have a genital HSV-2 infection
- Neonatal herpes (nHSV) is the most serious sequelae of genital herpes

HSV in Pregnancy

- More potential for adverse outcomes with primary infection than first, non-primary (antibody to type 1, new acquisition type 2 and vice versa) or recurrent infections
 - Increased risk for preterm labor
 - Increased risk of HSV transmission to neonate
 - Larger quantities of virus replicating in genital tract
 - Extensive cervical involvement
 - Lack of maternal antibody
 - Infant may be immunologically immature

Neonatal Herpes Acquisition

- Frequency and severity of HSV recurrences may increase over the course of pregnancy
- Congenital and intrapartum transmission of nHSV have been described
 - Almost all cases of nHSV perinatally acquired
 - ~85% of nHSV infection acquired from exposure to HSV in birth canal
 - ~10% acquired through exposure to other sources of HSV
 - ~5% occur after transplacental infection
 - Infant acquires infection at time of delivery through contact with HSV-infected genital secretions
- Duration of ruptured membranes a risk factor for acquisition

Risk of Transmission

- Women who acquire genital herpes near time of delivery:
 - Risk of transmission to the neonate is 30-50%.
- Women with a history of recurrent herpes at term or who acquire HSV during the first half of pregnancy:
 - Risk of transmission $< 1\%$.

Risk of Transmission

- Recurrent genital herpes much more likely than acquisition during late pregnancy.
- Therefore the proportion of nHSV infections from women with recurrent HSV is substantial.
- Up to 80% of nHSV cases are born to mothers without symptoms or a known history of genital herpes

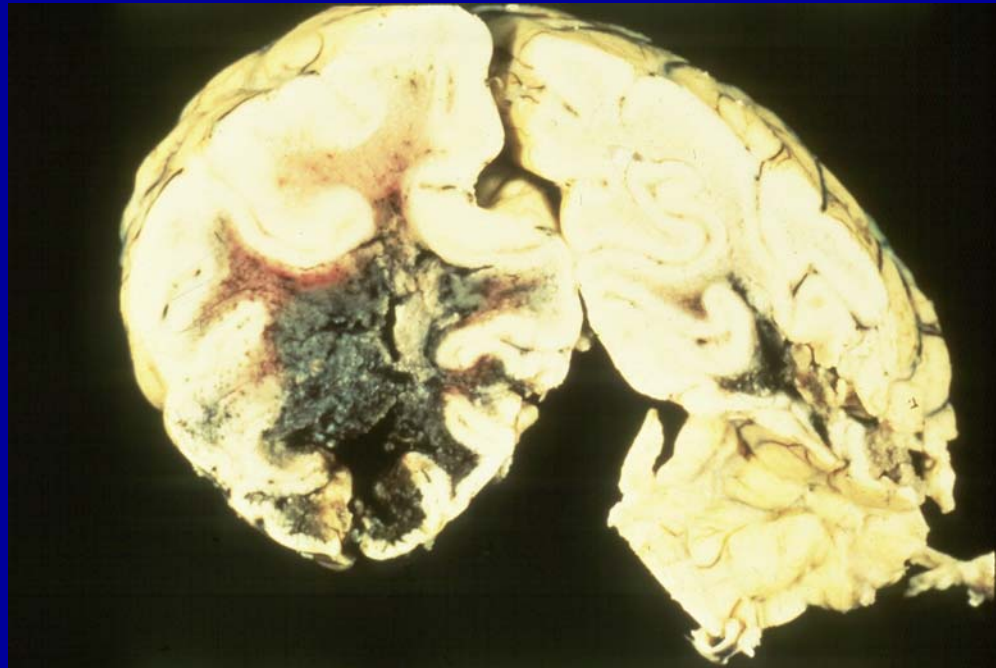
Neonatal Herpes

- Most develop signs of infection in second week of life
- 3 Forms
 - Skin, Eye and/or Mouth (SEM) Disease (~40%)
 - Central Nervous System (CNS) Disease (~35%)
 - Disseminated Disease (~25%)
- Associated with high morbidity and mortality even with treatment

Neonatal Herpes



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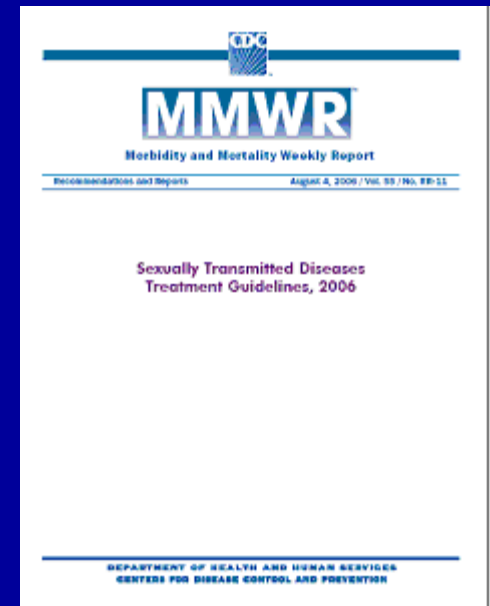


Neonatal Herpes Prevention

- Prevent acquisition of genital HSV during late pregnancy
- Avoid exposure of the infant to herpetic lesions at delivery
 - Caesarian section
 - Universal, type-specific rapid diagnostic testing at delivery
 - Other, yet to be discovered/proposed method
- Type-specific serological testing at 34 weeks and, if positive, antiviral therapy at or beyond 36 weeks of gestational age.

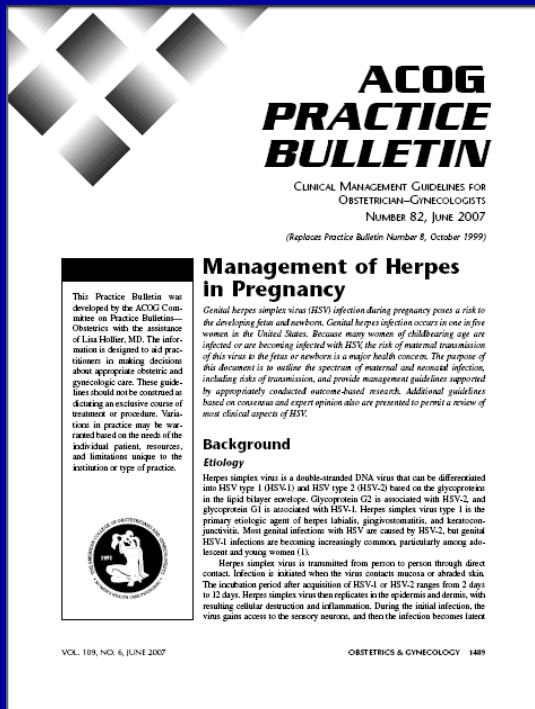
CDC Guidelines

- All pregnant women should be asked about HSV history
- All women without known genital herpes should be counseled to avoid exposure to HSV
- Type specific serologic tests should be offered to women with genital herpes whose sex partner has HSV infection
- At onset of labor, all women should be carefully examined for herpetic lesions and symptoms of herpes



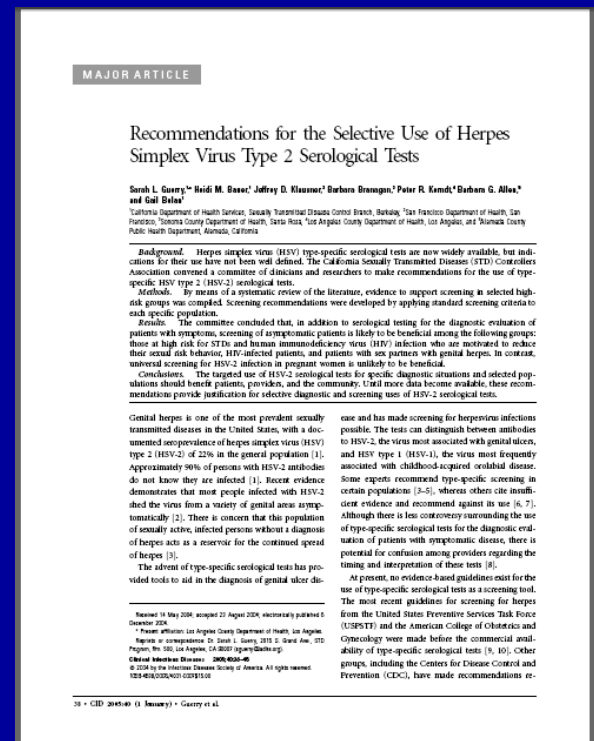
American College of Obstetricians and Gynecologists (ACOG) Guidelines

- All women should be asked in early pregnancy about history of herpes and symptoms
- All women with active genital herpes should be offered anti-viral therapy at or beyond 36 weeks of gestation
- Women should be examined for herpetic lesions when presenting for evaluation in labor or delivery
- Caesarean delivery is indicated in women with active genital lesions or prodromal symptoms near the time of delivery



California Guidelines

- Asymptomatic pregnant women with partners who have a known genital HSV-2 infection should be screened
- HIV-infected pregnant women should be offered HSV type-specific serologic testing



Current Neonatal Herpes Surveillance

- Currently reportable in 10 states – CT, DE, FL, LA, MA, NE, NY, OH, SD, WA
 - However, there is no standardized case definition
- In 2007, it was recommended by a CSTE/CDC working group that neonatal herpes be made a reportable condition in the United States.
 - Current working group in place to develop standardized case definition and reporting

Neonatal Herpes Estimates

- Varying estimates in incidence rates
 - Whitley *et al.*: 76.2/100,000 live births
 - Xu *et al.*: 12.9/100,000 live births
 - Dinh *et al.*: 4/100,000 live births
- In California,
 - Morris *et al.* used hospital discharge and mortality data
 - Incidence rate: 12.1 per 100,000 live births
 - Approximately 570,000 births per year in California
 - Estimated 70 cases per year
 - Range: 20-400 cases per year

Benefits of a Surveillance System

- Measure true burden of disease
 - Population estimates are currently limited
 - Rely on research studies
 - Hospital data
- Monitor trends
 - Effectiveness of intervention strategies on burden of disease
 - Measure impact of potential vaccine

Benefits of a Surveillance System

- Identify outbreaks/clusters
 - Cluster in NYC associated with ritual genital circumcision
- Identify high-risk populations
 - Allow for focused and more cost-effective prevention campaigns
 - Reduce unnecessary caesarian deliveries

Benefits of a Surveillance System

- Pursue case investigations
 - Ensure adequate treatment was provided
 - Identify missed opportunities in prevention
 - Estimates of disease are small
 - Would require limited resources for each county
- Link cases with expert care
 - University-based consultation
 - Optimize clinical management

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