Algorithm for the evaluation of asymptomatic neonates after vaginal or cesarean delivery to women with active genital herpes lesions.

Maternal and Population Risk
- 20-25% of adults have genital HSV caused by HSV type 2
- HSV type I accounts for 20-50% of genital HSV in the US
- 10% of HSV-2 seronegative women have an HSV-2 seropositive sexual partner
- 20-33% of women are seronegative for both HSV-1 and HSV-2; the chance of acquiring either virus during pregnancy is 3.7%
- 66% of women who acquire genital HSV during pregnancy are asymptomatic

Risk of Neonatal HSV Infection
- HSV infection of the neonate is relatively uncommon but it is important to appropriately manage potential neonatal exposure
- Infection may be intrauterine (5%), intrapartum (85%), and postpartum (10%)
- Factors influencing transmission
  - Type of maternal infection (primary vs recurrent)
  - Maternal HSV antibody status
  - Duration of rupture of membranes
  - Integrity of mucocutaneous barriers
  - Mode of delivery
- Neonatal HSV infection has occurred despite cesarean delivery performed before the rupture of membranes.

Terminology of HSV Infection and Disease
- no HSV-1 or HSV-2 antibody present, acquires genital HSV → first-episode primary infection
- pre-existing HSV-1 antibody, acquires HSV-2 genital infection → first-episode nonprimary infection
- pre-existing HSV-2 antibody, acquires HSV-1 genital infection → first episode nonprimary infection

### Table 2: Maternal Infection Classification by Genital HSV Viral Type and Maternal Serology

<table>
<thead>
<tr>
<th>Classification of Maternal Infection</th>
<th>PCR/Culture From Genital Lesion</th>
<th>Maternal HSV-1 and HSV-2 IgG Antibody Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documented first-episode primary infection</td>
<td>Positive, either virus</td>
<td>Both negative</td>
</tr>
<tr>
<td>Documented first-episode nonprimary infection</td>
<td>Positive for HSV-1</td>
<td>Positive for HSV-2 AND negative for HSV-1</td>
</tr>
<tr>
<td>Assume first-episode (primary or nonprimary) infection</td>
<td>Positive for HSV-2</td>
<td>Positive for HSV-1 AND negative for HSV-2</td>
</tr>
<tr>
<td>Recurrent infection</td>
<td>Positive for HSV-1 OR HSV-2</td>
<td>Not available</td>
</tr>
<tr>
<td></td>
<td>Negative OR not available</td>
<td>Negative for HSV-1 and/or HSV-2 OR not available</td>
</tr>
<tr>
<td></td>
<td>Positive for HSV-1</td>
<td>Positive for HSV-1</td>
</tr>
<tr>
<td></td>
<td>Positive for HSV-2</td>
<td>Positive for HSV-2</td>
</tr>
</tbody>
</table>

* To be used for women without a clinical history of genital herpes.
* When a genital lesion is strongly suspicious for HSV, clinical judgment should supersede the virological test results for the conservative purposes of this neonatal management algorithm. Conversely, if in retrospect, the genital lesion was not likely to be caused by HSV and the PCR assay result or culture is negative, departure from the evaluation and management in this conservative algorithm may be warranted.
At 24 hours of age, obtain from the newborn HSV blood PCR and HSV surface cultures (conjunctivae, mouth, nasopharynx, rectum and scalp electrode site if present). Can monitor without acyclovir therapy.

If there is rupture of membranes >4-6 hours or the infant is <37 weeks consider immediate evaluation and treatment.

Any signs or symptoms at any time immediately evaluate and treat.

Consider ID Consult

Maternal history of genital HSV preceding pregnancy?

Notify Infant Provider

Send maternal type specific serology for HSV-1 and HSV-2 antibodies

TREAT BABY IF SYMPTOMATIC. If not symptomatic:

- At 24 hours of age obtain the following from the newborn
  - HSV blood PCR and HSV surface cultures (conjunctivae, mouth, nasopharynx, rectum and scalp electrode site if present).
  - CSF cell count, chemistries, and HSV PCR, ALT
- Start IV acyclovir at 60 mg/kg/day in 3 divided doses
- If there is rupture of membranes >4-6 hours or the infant is <37 weeks consider immediate evaluation and treatment.
- Consider ID consult

Determining Maternal HSV Infection Classification (table)

First episode primary or first episode nonprimary?

Yes

Consult NICU/ID for management

Yes

PCR or culture positive?

No

PCR, viral cultures are negative >48 hours - stop acyclovir and consider discharge if other discharge criteria have been met.

Yes

PCR or culture positive?

TREAT BABY IF SYMPTOMATIC. If not symptomatic:

- At 24 hours of age, obtain from the newborn HSV blood PCR and HSV surface cultures (conjunctivae, mouth, nasopharynx, rectum and scalp electrode site if present). Can monitor without acyclovir therapy.
- If there is rupture of membranes >4-6 hours or the infant is <37 weeks consider immediate evaluation and treatment.
- Any signs or symptoms at any time immediate evaluation and treatment are indicated
- Consider ID Consult

PCR or Culture Positive?

Yes

Surface cultures positive or blood or surface PCRs positive

Consult NICU for CSF (for cell count, chemistries and HSV PCR) and serum ALT. Start Acyclovir at 60/mg/kg/day in 3 divided doses.

No

PCR or culture negative

Acceptable to discharge newborn if HSV cultures are negative >48 hours - parent education and follow up plan completed.