Obstetrics and HIV
An Update

Jennifer Van Horn MD
University of Utah

Obstetrics and HIV

- Perinatal transmission
- Testing
- Antiretroviral therapy
- Antepartum management
- Intrapartum management
- Postpartum management

Perinatal Transmission

Estimated Numbers of Perinatally Acquired AIDS Cases by Year of Diagnosis, 1985–2007—United States and Dependent Areas

1,000
800
600
400
200
0
No. of cases
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
Year of diagnosis

Note. Data have been adjusted for reporting delays and missing risk-factor information.

Decrease Perinatal Transmission

- Universal screening
- Antiretroviral therapy
- Appropriate use of Cesarean delivery
- Bottle feeding

Perinatal Transmission

	Risk
Antepartum	6-13 %
Intrapartum	12-26 %
Breast feeding	10-15 %
Cumulative	18-39 %

Perinatal Transmission

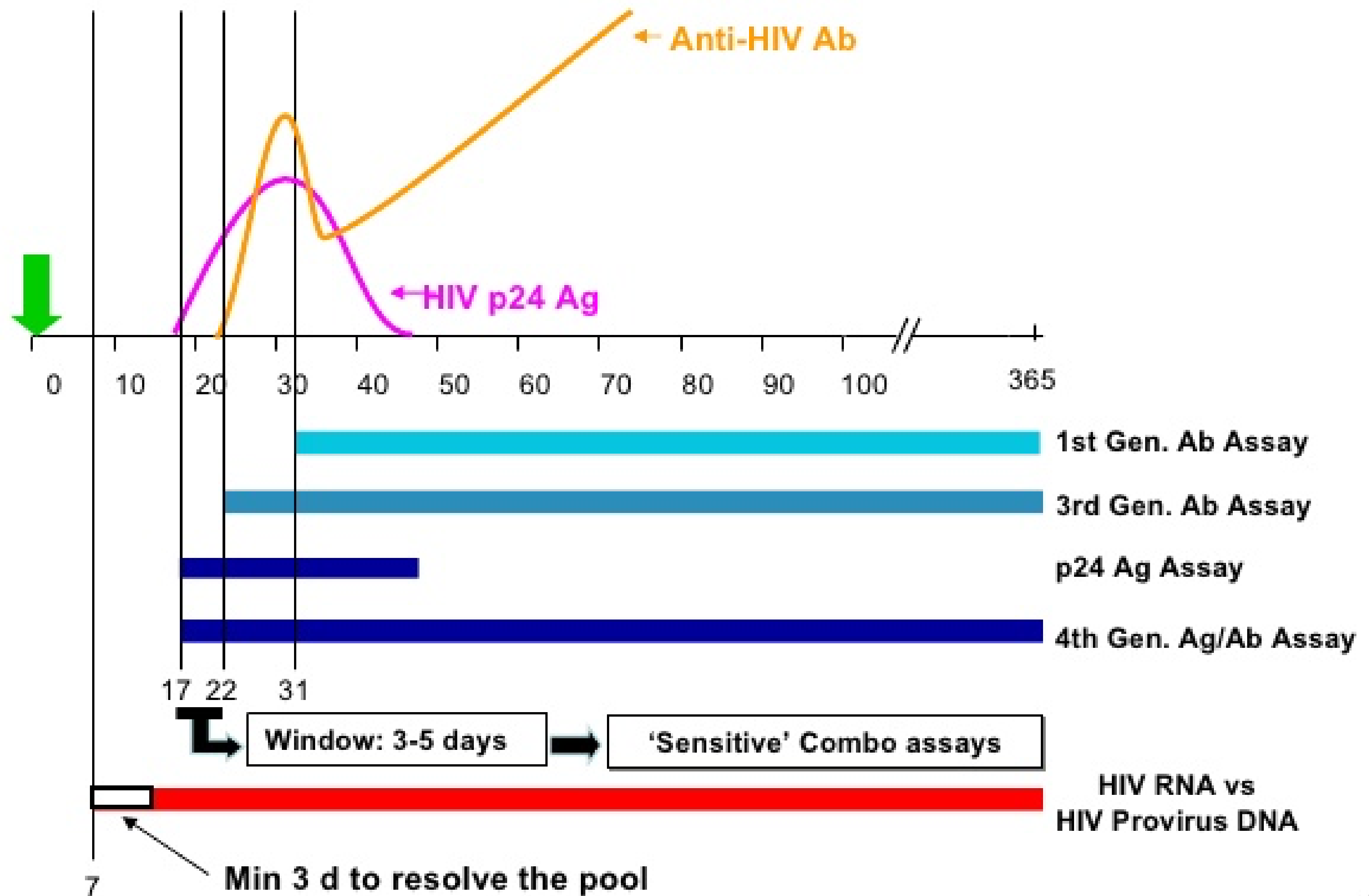
Viral load is primary determinant of perinatal transmission

HIV Testing

HIV Testing

- Past
  - Elisa: HIV antibodies
  - Confirmatory Western Blot
- Recommended
  - Fourth generation combined antibody/antigen
  - HIV-1/HIV-2 antibody differentiation immunoassay

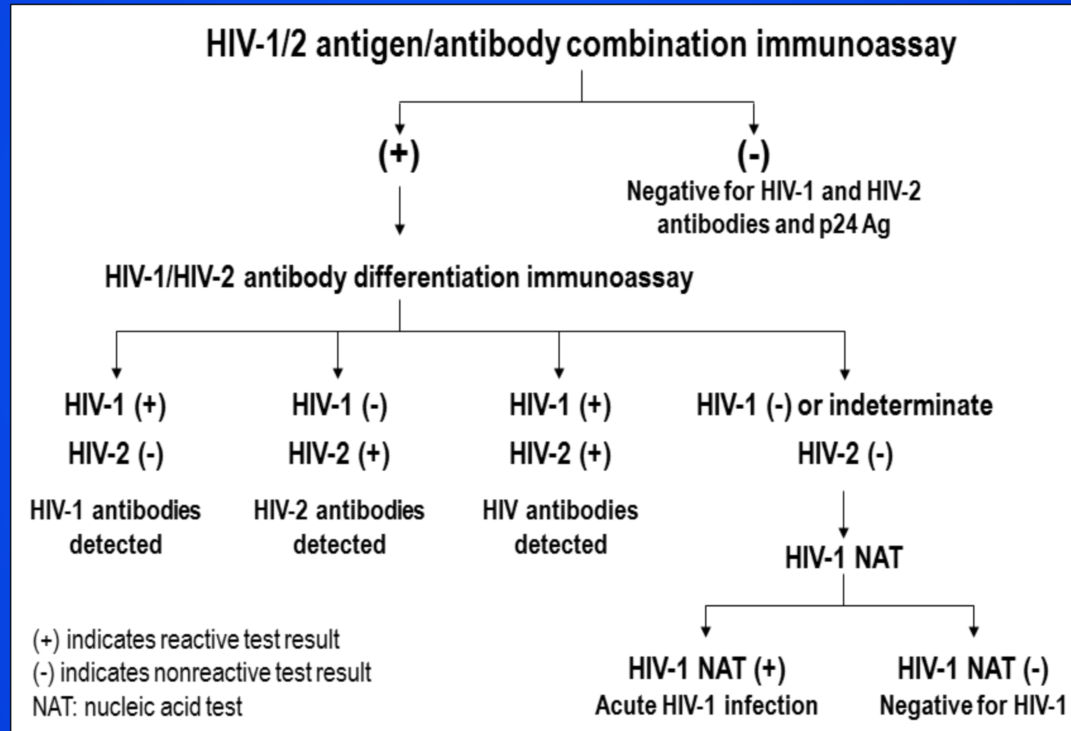
Diagnosis of HIV Infection



Adapted from: Fiebig *et al* AIDS, 17:1871-1879 (2003)

HIV Testing

Recommended Laboratory HIV Testing Algorithm for Serum or Plasma Specimens



1. Laboratories should conduct initial testing for HIV with an FDA-approved antigen/antibody

Advantages of Algorithm

- Earlier diagnosis
  - P 24 antigen appears prior to antibodies
  - Earlier treatment
- Eliminates false negative and indeterminate Western blots
- Accurate diagnosis of HIV-2
  - Slower progression, less infectious
  - NNRTI not active
  - HIV-1 viral assays not accurate
  - No validated resistance testing

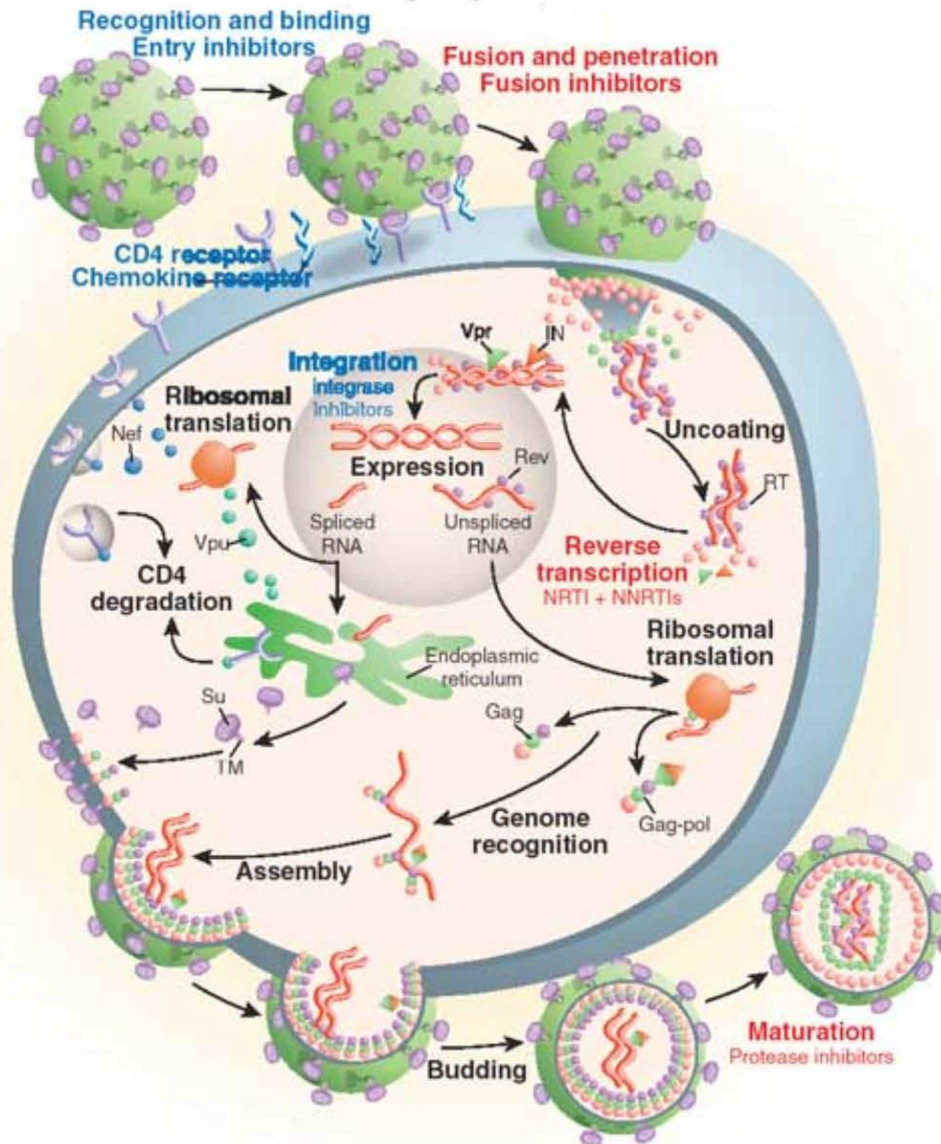
HIV Screening: Pregnant

- Universal screening first trimester
- Third trimester screening
  - Risk factors
    - Patient/partner uses injection drugs
    - Partner with HIV
    - Exchange sex for money or drugs
    - New/mulitple partners
  - Prevalence greater than 1:1000
- Rapid screen if undocumented status at time of labor (24 hour availability, results within 1 hour)

Antiretroviral Therapy

The Life Cycle of HIV-1

2006 Nature Publishing Group



Pregnancy and ART

- All pregnant women should receive combination ART regardless of viral load and CD4 level
- Transmission has been observed across the range of viral loads (including low and undetectable)
- Initiate as early in pregnancy as possible
- Goal: maintenance of undetectable viral load

Pregnancy and ART

- Administer at all points: antepartum, intrapartum, and postnatally to infant
- Antiretroviral Pregnancy Registry
- No increase in birth defects
- Possible small increase in preterm delivery (OR 1.2 to 3.4), but studies not comprehensively controlled
- Benefits outweigh risk

Pregnancy and ART

- Continue current ART regimen if viral suppression and well tolerated
- Initiation of ART
  - Two NRTIs

    +
  - PI or integrase inhibitor
- Insufficient suppression: resistance testing, adherence, drug interactions

Antepartum Management

Antepartum Management

- Hepatitis C, liver and renal function testing
- Ultrasound
  - First trimester for dating
  - Second trimester for anatomy
- No increased risk of transmission with amniocentesis in women on ARV
- Glucose screening 24-28 weeks (earlier if PI)
- Antepartum surveillance for usual obstetric indications

Laboratory Monitoring

- Viral load
  - Initial visit
  - 2-4 weeks after initiating or changing therapy
  - Monthly until undetectable then at least every 2 months
  - 36 weeks to assess mode of delivery
- CD4
  - Initial visit
  - At least every 3-6 months
- Resistance testing (>1000 copies/mL)
  - Prior to initiation of ART
  - Suboptimal viral suppression

Intrapartum Management

Intrapartum Management

- Continue antepartum ART during labor and delivery
- Intravenous ZDV
  - 2 mg/kg/hr load followed by 1 mg/kg/hr
  - Administered viral load > 1000 copies/mL
  - Not required viral load < 50 copies/mL
  - Consider viral loads 50-999 copies/mL
  - Administer 3 hours prior to C-section
- Cesarean delivery
  - 38 weeks viral load > 1000 copies/mL
  - 39 weeks for obstetric indications

Intrapartum Management

- Rapid HIV test if undocumented status
  - Available 24 hours, results within hour
  - Rapid HIV 1 / 2 antibody test
  - If positive initiate ZDV, order confirmatory test and HIV-1 RNA assay
- Women at term on ART with viral load <1000 copies/mL no association between duration of ruptured membranes and transmission
- Ruptured membrane <37 weeks
  - Administer steroids, deliver based on current obstetric practice

Intrapartum Management

- AROM in setting ARV and viral suppression not associated with transmission (avoid in setting of viremia)
- Avoid scalp electrodes
- Limited data on operative vaginal delivery
  - Potential risk of transmission
  - Likely no increased risk transmission in patients on ART and virally suppressed

Postpartum Managment

Intrapartum Management

- Delayed cord clamping not contraindicated
- Methergine
  - Increased serum levels/vaso-constrictive response with protease inhibitors
  - Decreased serum levels/efficacy with nevaripine and efavirenz

Postpartum Management

- Newborn Treatment
  - All newborns should receive ART
  - Mothers on ART with viral suppression: ZDV x 4 weeks
  - Mothers not receiving ART or with viremia: combination therapy for 6 weeks
  - HIV testing birth, 4-6 weeks, 3 months, 6 months
  - HIV nucleic acid amplification until 18 months
- Breast feeding contraindicated
  - Neither infant nor maternal ART prophylaxis completely eliminates risk
- Contraceptive plan

Resources

National Perinatal HIV Hotline
1-888-448-8765

aidsinfo.nih.gov (DHHS Perinatal Guidelines)

Antiretroviral Pregnancy Registry
1-800-278-4263