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## HIV Rapid-Detection Testing at the Labor Room of the University of Puerto Rico Hospital

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**P**erinatal human immunodeficiency virus (HIV) transmission constitutes the main route of the infection in the pediatric population in Puerto Rico. The most effective way to reduce perinatal transmission is avoiding infection on women of reproductive age. A second opportunity to avoid perinatal transmission is identifying mothers positive to HIV virus and establishing prenatal and intrapartum treatment.

For patients admitted in labor without proper prenatal screening, traditional HIV testing is impractical because results are not available for a few days. A rapid HIV detection test in Labor Room area helps to detect those patients that will benefit from medical intervention and pharmacology treatment to reduce perinatal HIV transmission.

In 2002, a pilot study was implemented at the UPR Hospital to offer rapid detection HIV testing to women admitted to the Labor Room area without proper prenatal screening. After an initial orientation process, the test was promptly established and used by Labor Room personnel. Until the present moment, a total of 279 tests have been done with six (6) positive results. Those six (6) positive patients received intrapartum management according to the established guidelines to prevent perinatal transmission.

Our current HIV rapid detection test is **Uni-Gold**. This test is easily performed, highly reliable and accepted by patients and Labor Room personnel. It has been an honor for the UPR Hospital to help the Puerto Rico Department of Health develop the public policy of administering this rapid detection HIV test in all Labor Rooms of hospitals in Puerto Rico. The ultimate goal is to eliminate perinatal HIV transmission completely.

Recent Center for Disease Control (CDC) statistics point out that Puerto Rico occupies the 8th place among all territories of United States with the highest number of accumulated HIV-positive cases. According to local statistics of the Department of Health, there are roughly twice as many HIV-positive men as HIV-positive women in Puerto Rico. Heterosexual transmission has become the principal route of infection in women, accounting for 61 % cases (1).

In the pediatric population, 94 % of cases are exposed during the perinatal period. Specifically, about 25-40 % of cases occur in uterus (prenatal) and 60-75 % occur during the actual process of labor (2).

To reduce perinatal HIV transmission, the CDC has recommended HIV testing to all pregnant patients during the first and third trimesters of pregnancy and to offer prenatal and intrapartum treatment. Since the year 2000, an **Opt Out** policy is followed, meaning HIV is offered as part of routine prenatal testing to all patients without need to obtain specific HIV written consent. Patients who decline HIV testing are oriented about its benefit and only their refusal is documented in the medical chart (3).

To further reduce perinatal HIV transmission, HIV positive pregnant women are offered Zidovudine (AZT) infusion upon admission to Labor Room and delivered by elective cesarean section. These strategies have reduced by 87 % the rate of perinatal HIV transmission to infants. Further reduction is also achieved by orienting these women not to lactate their newborns. In patients who decline delivery by cesarean section, HIV transmission can be reduced by avoiding the use of artificial rupture of membranes and internal fetal monitoring (2).

It is imperative that the physician knows the HIV status of the pregnant patient who arrives to Labor Room. Traditional HIV testing usually takes several days for the results to arrive, making their usefulness very limited in the Labor Room setting. For this reason, the Puerto Rico Department of Health has established a public policy of administering HIV rapid detection tests in all Labor Room areas of Puerto Rico to patients without proper evidence of prenatal HIV testing. This policy was signed on February 20, 2008 and was effective on July 20, 2008 for all institutions.

### University of Puerto Rico Hospital Experience

In 2002, the UPR Hospital was chosen by the Department of Health as the site to begin a pilot project of performing rapid detection HIV tests to patients admitted to the Labor Room without proper evidence of HIV testing during pregnancy.

Extensive orientation was offered by personnel from the Department of Health, particularly by Dr. Clemente Díaz from University of Puerto Rico Medical Sciences Campus. Orientation was offered to physicians, nurses and clerical personnel from Labor Room and nursery areas and laboratory personnel. Competency and proficiency testing were also performed, in accordance with local and federal requirements.

The following patients were offered HIV rapid detection testing upon admission:

- Patients without prenatal care
- Patients without HIV testing done during third trimester
- Patients without prenatal care laboratory results available
- Patients in preterm labor (before third trimester testing)
- Patients with high risk behavior (substance abuse, sex workers, etc.)

The first rapid detection HIV test utilized in the Hospital was Single Use Diagnostic System (**SUDS**). Between October 2002 to July 2003 the hospital utilized this test, in patients with any of the above criteria. The **SUDS** test was cumbersome for the laboratory personnel and results usually took over an hour to be available.

**SUDS testing:**

- October 2002 to July 2003
- Total patients : 29 (< 3 per month average)
- Reactive test: one

In August 2003, the test was subsequently changed to **OraQuick** and used until September 2005. The results of the test reached Labor Room faster, on average about thirty to forty minutes. The test was still cumbersome to laboratory personnel since it required duplicate testing of finger stick and venous sampling blood.

**OraQuick testing:**

- August 2003 to September 2005
- Total patients: 132 (< 6 per month average)
- Reactive tests: two

Between October 2005 and July 2006, there were no HIV rapid detection tests available in Labor Room Area in UPR Carolina Hospital, for administrative reasons. The physicians and nurses of Labor Room had rapidly become accustomed to the test and kept requesting for more reagents.

Finally on July 2006, a new rapid detection test was available: **Uni-Gold**. This test was easily performed by laboratory personnel and results available in ten to fifteen minutes.

**Uni-Gold testing:**

- July 2006 up to present

- Total patients: 118 (> 6 per month average)
- Reactive tests: three

All patients that have been offered to be tested during the last six years at the UPR Hospital have accepted the rapid detection HIV test. In summary, a total of 279 HIV rapid detection tests have been performed. Among those patients, six had a reactive test, representing 2 % of the population tested. All six patients with reactive rapid detection tests were subsequently confirmed as HIV positive with conventional tests. All six patients were placed in AZT infusion upon admission and offered delivery by cesarean section. One patient declined cesarean section and delivered vaginally without invasive fetal monitoring. All patients were oriented not to lactate their fetuses and offered post partum follow up for their HIV positive status.

In conclusion, HIV rapid detection testing is an extremely valuable tool in a Labor Room Unit. The results of the tests seem to be highly reliable and the **Uni-Gold** test has a 99 % specificity on both low risk and high risk populations. All patients with criteria for testing are oriented about the benefits of the tests and none has declined the test in six years of experience. This test was rapidly accepted by physicians, nurses and laboratory personnel and was easily and promptly implemented in our institution.

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