Running Head: OVERCOMING NURSING BARRIERS TO HIV SCREENING

An Evidence-Based Approach to Overcoming Nursing Barriers to HIV Screening

In Pregnant Women

By

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The members of the Committee appointed to examine the project of Julie L. Hannah find it satisfactory and recommend that it be accepted.

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Abstract

For nearly 15 years the Center for Disease Control has recommended universal HIV testing on all pregnant women to reduce mother to child transmission (MTCT) of human immunodeficiency virus (HIV). Many states are addressing the problem of accomplishing perinatal HIV testing through the implementation of opt-out policies. Yet, pregnant women continue to arrive at labor and delivery units without HIV perinatal lab documentation. A pregnant woman’s knowledge of her HIV antibody status will help her to make informed decisions about care for herself and her infant. Using Roger’s Diffusion of Innovation framework, this paper describes a process that was implemented at a large Pacific Northwest hospital to assist nurses in the implementation of perinatal HIV status assessment, documentation, counseling for testing, and tracking of outcomes. Using computer based nursing instruction modules, forced electronic HIV status documentation, and a step-by-step nursing process algorithm, the 483-licensed bed, private hospital was able to increase HIV screening rates prior to birth from 60% to 95-97% within a two year time frame.
Introduction

Perinatal HIV transmission is the most common route of HIV infection in children and is now the source of almost all AIDS cases in children in the United States (Centers for Disease Control & Prevention, 2006). Healthy People 2010 has an objective to reduce new cases of perinatally acquired HIV infection; however this objective remains a challenge for healthcare systems until all states extend their surveillance systems to include HIV (U.S. Department of Health and Human Services, 2000). In 2005, women accounted for 26% of the estimated 37,163 U.S. adult and adolescent HIV cases. High-risk heterosexual contact was the source of 80% of these newly diagnosed infections (CDC, 2005). In 1995, the U.S. HIV related medical care cost was 3.7 billion which increased to 11 billion by fiscal year 2005 (Summers, & Kates, 2004). Individual healthcare costs of an HIV positive infant, including prescription drugs, hospitalization, and laboratory testing ranged from $194,250 to $215,742, assuming a median life expectancy of 25 years after diagnosis (Sansom, et al., 2006; Doyle, Levison, & Gardner, 2005). The CDC guidelines for testing pregnant women for HIV state that ideally women should receive early prenatal care including voluntary HIV testing (CDC, 2006). Furthermore, those who do not receive early prenatal care should be offered the rapid HIV testing during labor and provided immediate access to antiretroviral prophylaxis (CDC, 2003). Antiretroviral therapy given to women with HIV perinatally and to their newborns in the first weeks of life reduces the vertical transmission rate from 25% to 2% or less (U.S. Public Health Service Task Force, 1994; American College of Obstetricians and Gynecologists, 2008).

From 1997 to 2006, the rate of new HIV/AIDS cases in the state of Oregon has remained stable with eight to nine cases per 100,000 persons (Oregon Statewide HIV Prevention Planning Group, 2008). To increase the number of pregnant women tested for HIV, the state of Oregon passed House Bill 2706 in 2006 making Oregon an “opt-out state” for HIV testing of a pregnant
woman. This offers health care providers a method to test for HIV as part of the prenatal panel without the written consent providers must obtain from non-pregnant individuals before performing HIV testing. Providers must inform the patient about the components of the prenatal panel, and a patient may refuse or “opt out” of any of the tests but there is no written consent specifically for HIV testing. Prior to this law, a woman needed to sign a specific consent in order to be tested for HIV. The study of the “opt-out” approach to HIV testing has shown greater testing rates than the opt-in approach although research shows that one barrier to testing remains: the patient’s fear of receiving positive test results (Rahangdale, Sarnquist, Maldonado, & Cohan, 2008; Wynia, 2006).

Regardless of these changes, many women continue to be admitted to labor and delivery units without documented prenatal HIV testing (CDC, 2006). In Oregon this equates to 25% of women not tested in 2007 (Oregon Department of Human Services, 2007). CDC studies have found that HIV testing rates for pregnant women vary widely and a high proportion of childbearing age women were unaware that treatment is available to reduce Mother-to-child transmission (MTCT) (CDC, 2007). In conjunction with CDC recommendations and Oregon state law, labor and delivery nurses must offer the rapid HIV test during labor for women with undocumented HIV status, thus providing immediate access to antiretroviral prophylaxis. A pregnant woman’s knowledge of her HIV antibody status will help to make informed decisions about care for herself and her infant.

Purpose Statement

The purpose of this article is to describe a process for identifying those pregnant women who have not had prenatal HIV screening, to highlight guidelines for screening, evaluating, and managing pregnant women who present at a labor and delivery unit with undocumented HIV
status, and to detect and decrease practice barriers for incorporating these guidelines into practice.

The clinical setting for implementing the evidenced based practices recommended in this project was a 483-licensed bed, private Pacific Northwest hospital that delivers approximately 220 infants per month. This facility had a 60% perinatal HIV testing rate on admission prior to the Oregon State law. In June 2006, it was determined by the health system’s perinatal women’s and children program that an interdisciplinary task force was to be initiated to address the low testing rate and to implement rapid HIV testing on all undocumented HIV status perinatal patients admitted to labor and delivery. By December 2008, evidence based clinical practice interventions were put into place that resulted in a testing rate of 95-97%.

Problem Statement

Perinatal hospital units in Oregon face the challenge of implementing rapid HIV testing on patients with undocumented or unknown HIV status. Ideally, all HIV infected women would be identified before pregnancy, but many patients have limited access to care. Studies have indicated that women with HIV/AIDS may not receive optimal levels of care and treatment compared to men (Kaiser Family Foundation, 2009). Patients who have positive HIV test results can be treated during labor with antiretroviral therapy to help reduce the likelihood of HIV transmission to the newborn. In spite of the need for documenting HIV status of women in labor, in Oregon, approximately 25% of women are not tested prior to the onset of labor (Oregon Department of Human Services, 2007). Care provider time restraints and lack of formal training for HIV counseling have been shown to be barriers to testing (McKinney, McSpirit & Pomeroy, 2000). These barriers may also be present for labor nurses working in busy labor and delivery settings, who must ascertain the HIV status.
Conceptual Framework

The framework used to analyze the adoption of the guideline for rapid HIV testing on the labor and delivery unit is Rogers' Theory of Innovation Diffusion (2003). Rogers' theory is frequently used in the health care industry and is linked to adoption of new practice behaviors and patient outcomes (Frasure, 2007). The main elements of diffusion are (a) an innovation, (b) communication channels, (c) time, and (d) a social system (Figure 1; Rogers, 2003). The rate of adoption is the speed with which innovation is adopted by individuals of a social system. Other variables affect rate of adoption such as: (a) type of innovation, (b) nature of communication channels diffusing the information over a period of time, (c) nature of the social system, and (d) the extent of change agents’ efforts in diffusing the innovation (Rogers, 2003).

The variance in the rate of adoption can be explained by five attributes: relative advantage, compatibility, complexity, trialability, and observability (Rogers, 1995, 2003). Relative advantage is the degree to which an innovation is perceived to be better than current practice. For example, ensuring the maternal HIV test result is negative, or providing treatment to the mother if HIV positive to reduce MTCT versus not knowing the result and transmitting HIV to the infant. Preventative interventions generally have a slow rate of adoption due to rewards that are delayed over time and unwanted consequence that may not occur (Rogers, 2003). This same slow adoption rate can be applied to screening for HIV to prevent MTCT. Compatibility is the degree to which the innovation is perceived as consistent with values, past experiences, and current needs (Rogers, 2003). Nurses must perceive that maternal HIV is a problem to increase the probability of the adoption of HIV screening to prevent MTCT. Complexity is the degree to which an innovation is hard to understand and use (Rogers, 2003). Simple and well-defined guidelines may be easily adopted by health care professionals. Barriers to HIV testing may include patients’ resistance to testing for HIV and their lack of self-reporting
risk behaviors, as well as nurses not having the expertise in counseling skills necessary to achieve change (Sanson-Fisher, 2004). Trialability is the degree to which an innovation is tested on a limited basis (Rogers, 2003). New ideas that are quickly implemented and complex due to regulations may have a slower rate of adoption. Pilot testing allows time for clinicians and patients to accept the change and may involve re-inventing to customize it more closely to the individual goal (Sanson-Fisher, 2004). “Observability is the degree to which the innovation results are visible to others” (Rogers, 2003, p.258). HIV screening may be recommended by key professional organizations (e.g., Association of Women’s Health and Obstetric Neonatal Nurses and ACOG) but if the clinician practices in a low prevalence area and has never had a patient with HIV they may not see it as necessary.

For this guideline, potential barriers to adoption were evaluated based on the domains in the Diffusion of Innovation framework, and perceived attributes were taken into consideration for the development and implementation of the guideline.
Elements of Diffusion

Innovation

Perceived Attributes
1. Relative advantage
2. Compatibility
3. Complexity
4. Trialability
5. Observability

Re-invention

Communication Channels

Mass Media channels
Interpersonal channels

Time

Innovation-decision Process
1. Knowledge
2. Persuasion
3. Decision
4. Implementation
5. Confirmation

Adoptiveness
Rate of Adoption

Social System

Structures
Norms
Opinion leaders
Change agents
Types of innovation-decisions
Consequences

Figure 1. Rogers' Elements of diffusion (Rogers, 2003)
Definition of Terms

- Opt-out HIV policy
  
  *Operational definition:* Provide rapid HIV antibody testing of pregnant women in labor admitted for delivery, and/or newborns in nursery units, if there is no documentation of maternal HIV testing or patient is at high risk for acquiring HIV during pregnancy.

- Adequate charting of HIV status
  
  *Operational definition:* The nurse must document the HIV status by choosing the correct data field as negative, positive, unknown, or declined, as well as the date and time of the test. If the status is unknown there must be an annotation that states why the status is unknown and that the patient received appropriate counseling as well as a notation of the nurse alerting the infant care provider of the undocumented maternal HIV status.
Review of Literature

Using Cumulative Index to Nursing and Allied Health Literature (CINAHL®) type database search engines the literature was examined for content related to HIV and mother-to-child transmission. Inclusion criteria included: national and state HIV rates in pregnancy and women; barriers to testing in regards to patients, care providers, and nursing; medical costs associated with having HIV; and diffusion of innovation theory.

HIV rates and pregnancy

The number of U.S. children reported with AIDS attributed to perinatal HIV transmission peaked at 945 in 1992 and declined 95% to 48 in 2004, primarily because of the identification of HIV-infected pregnant women and treatment with antiretroviral medication prior to birth (CDC, 2005). According to the Centers for Disease Control (CDC, 2006) every infant infected with HIV through MTCT represents a sentinel health event that signals a missed prevention opportunity, or, more rarely, a failure of prophylaxis. “By the end of 2006, an estimated 56,500 young people aged 13-24 were living with HIV infection or AIDS” (CDC, 2008). Mother-to-child transmission directly impacts women in the childbearing years who may be infected with HIV and are unaware of their status. In 2006, based on the findings of the CDC, the state of Oregon passed House Bill 2706 allowing care providers to offer opt-out testing for routine HIV screening. Data supports the offering of the HIV test as a routine prenatal test without signed consent. This mirrors the process of testing syphilis, rubella, group-B strep, and hepatitis B (ACOG, 2008; Anderson & Sansom, 2006; CDC, 2006; Perinatal HIV Guidelines Working Group, 2008; Samquist, Cunningham, Sullivan & Maldonado, 2007).

Unfortunately, approximately 69% of mothers receive first trimester prenatal care, and 7.9% receive late or no care (Martin, Hamilton, Sutton, & Ventura et al., 2009). With nearly 4 million women delivering annually in the United States (Martin, Hamilton, Sutton, & Ventura et
al., 2009), this equates to approximately 320,000 women who give birth with late or no prenatal care. Hospital labor and delivery units are challenged with identifying and managing the HIV status of admitted patients. This process includes obtaining verbal consent, drawing the HIV test, reporting the results, and administering antiretroviral medication if indicated prior to delivery.

According to Kourtis, Bulterys, Neshiem, & Lee (2001), the rationale for focusing on women in labor is the brief window of opportunity for reducing HIV transmission to the newborn (as cited in Bulterys et al., 2004). A multicenter study, MIRIAD (Mother-Infant Rapid Intervention at Delivery) supported the feasibility of rapid HIV testing followed by antiretroviral medication (Jamieson, et al., 2007).

The literature discusses numerous barriers that impact the implementation and acceptance of perinatal HIV testing. Identifying those barriers provides a framework for incorporating the key elements of Rogers' (2003) theory of diffusion of innovations.

**Barriers to obtaining HIV status related to patient attitude**

Prenatal screening is often the critical first step in prevention of MTCT. A study by Jha, Gee, & Coomarasamy (2003) revealed that patient attitude supporting universal screening for HIV in a low prevalence area was 80%. This study showed that the most frequent reason for screening refusal was the patient’s perception of low risk for HIV. Education regarding the ease of vertical transmission may alter the perception and improve acceptance of the test. Another area of concern is the patient with no prenatal care who enters the labor and delivery area. Pain, anxiety, and stress from labor contractions as well as the presence of family members may interfere with acceptance of rapid HIV testing. In a study by Rahangdale, Sarnquist, Maldonado, & Cohan, (2008) 93% of women admitted to labor and delivery showed acceptance of the test due to concern regarding risks to baby and self. Nurses must carefully consider the nature of the HIV test counseling and disclosure of results in this environment.
Barriers to obtaining HIV status by pediatric care providers

The American Academy of Pediatrics (AAP) (2008) recommended that the health care professional for the newborn be informed promptly of maternal HIV serostatus if positive or unknown so that the testing and appropriate care can be accomplished within 12 hours of birth. Kline & O’Connor (2003) found that in low seroprevalence areas, pediatricians that assessed parents as “low risk” feared offending the parents if HIV testing was suggested. This study also found that 49% of pediatricians have never had an HIV infected infant in their practice. The “low prevalence area” and “parents who do not fit the profile” attitude presents barriers to counseling regarding maternal and/or newborn screening.

Barriers to obtaining HIV status by maternal care providers

The literature reports barriers to obtaining HIV status by maternal care providers. In developing our program the task force discussed the low prevalence of HIV in the area which may negatively influence provider prenatal testing rates. It was determined that providers may lack experience in recommending the HIV test as well as counseling regarding a positive test result. Recommended testing may not be carried out, in part, because care providers do not counsel or provide education on HIV screening. This is attributed to a lack of time or to insufficient knowledge regarding HIV (Burke et al., 2007; Kline, & O’Connor, 2003; McKinney, McSpirit, & Pomeroy, 2000; Rahimian, Driscoll, & Taylor, 1998). Sherr, Bergenstrom, Bell, McCann, & Hudson (2001) reported that risk and prevention of HIV prenatally was rarely discussed in depth by care providers. Sherr et al. suggest that pre-test counseling should become more focused on the advantages of HIV antibody testing, the availability of effective treatments, and the effectiveness of reducing transmission to their baby. Effective counseling may include video, audio, and written materials that are culturally and educationally appropriate for women (Healton et al., 1996 as cited in McKinney, McSpirit, & Pomeroy, 2000).
Risk-factor-targeted HIV testing is when a care provider screens women based solely on identified risk factors (Duggan, Khuder, Sinha, & Chakraborty, 2003; Giles, Garland, Lewin & Hellard, 2007). These judgments can place the mother who does not have the stereotypical lifestyle characteristics of an HIV positive woman at risk for missing the HIV testing. Studies have shown that higher-risk and lower-income women are tested more frequently for HIV even though the recommendations since 1995 have been that all pregnant women be screened regardless of lifestyle (e.g. universal screening) (Anderson & Sansom, 2006; Giles, Garland, Lewin, & Hellard, 2007; Schrag et al., 2003). Even though homosexuality and injection drug use are commonly assumed to be indicators of HIV risk, the CDC (August, 2008) reports that 80% of diagnosed AIDS cases in 2005 were attributed to heterosexual transmission and only 27% were associated with injection drug use in women.

**Barriers to obtaining HIV status by nurses**

It was determined by our program task force through informal nursing interviews that the nursing staff did not have adequate experience with education or counseling regarding HIV testing. Lack of current HIV education, low area prevalence rates, and limited time for counseling prior to birth were our main concerns. Although the literature provides information on care provider barriers pertaining to HIV testing it does not adequately address barriers faced by nurses working on labor and delivery, or specific interventions to help these nurses overcome the barriers to obtaining the HIV status prior to delivery. Resnick, Quinn, & Baxter (2004) noted that barriers to implementation of clinical practice guidelines include: inadequate education of staff, inconsistent guideline implementation, limited staff “buy-in,” turnover and new staff who miss education, lack of staff accountability, heavy workloads, documentation issues, and evaluation of the program once it is initiated. By creating an evidence-based guideline for obtaining the HIV status on labor and delivery based on Rogers’ diffusion of innovation
framework, these suggested interventions may facilitate and empower nurses to prevent or diminish MTCT.

Implementation Process

Prenatal HIV testing was done sporadically (60% of all deliveries) prior to the Oregon state law at the 483-bed Pacific Northwest hospital perinatal unit. Through new health policy and the implementation of a new process to obtain the HIV status prior to birth the innovation of 100% prenatal HIV testing can be obtained. According to Rogers (2003) authority decisions have the fastest rate of adoption due to influence, power, and expertise. The implementation process of a new program to ensure that every woman has a documented HIV test result prior to delivery at the 483-bed Pacific Northwest hospital perinatal unit occurred according to the following interventions and timeline.

April 2006-December 2006

A multidisciplinary committee consisting of a perinatologist, neonatologist, nursing, lab, pharmacy, and data analyst was developed. Baseline perinatal data was collected regarding the percentage of patients with known and documented HIV status on labor and delivery admission. A rapid HIV test was added to the hospital lab services and the lab staff was trained. Efforts were made with providers (physicians and certified nurse midwives) to standardize prenatal HIV testing and documentation of the results in the prenatal records.

Achieving 100% prenatal testing would be considered the ideal goal in all settings given the seriousness of MTCT. Yet, with the recommendations of a team of perinatal experts, the team concluded that local area care providers were not convinced that every woman needs to be tested, due to the belief of a low prevalence of HIV in Oregon. With a previous testing rate of 60%, the initial target prenatal testing goal for this program was set at 80%. Benefits anticipated by setting this goal of 80% included reducing the number of women requiring the Rapid HIV test
on admission, avoiding psychological stress in the laboring woman waiting for the results, reducing costs for the hospital and patient, reducing the potential of false-positive presumptive results and reducing time-urgent tasks for the nursing staff.

*January 2007 - March 2007*

An HIV protocol was developed for approval by the Regional OB/Newborn Quality Assurance Executive Committee. Approval was obtained for maternal and newborn treatment orders. The task force developed a nursing process algorithm for obtaining the HIV status prior to birth, HIV scripting for patient education, and a clinical practice alert covering the process and expectations for the nursing staff. Data sources were identified for auditing outcome measures.

*April 2007 - June 2007*

Education of nursing and ancillary staff regarding the HIV protocol was implemented late May 2007. An online powerpoint-based module with post tests was created by the committee to provide consistency with the protocol and interventions. These educational modules were to be completed two months prior to the implementation date. The module-based educational training was mandatory for all labor and delivery nurses. Treatment order sets were made available for maternal and newborn HIV positive patients. Monitoring was begun to assess protocol compliance along with quarterly reporting of documented HIV status on admission to labor and delivery. HIV protocol and educational documents were posted on the perinatal website for new employee orientation and as a resource for staff.

*July 2007 - September 2007*

Through an informal process, the coordinator of this program provided feedback about missing HIV status for individual patients to obstetrical care providers. Monitoring was continued to determine compliance with nursing documentation and the HIV protocol.
October 2007 - December 2007

Similar to an existing protocol for obtaining group B strep documentation, the program coordinator initiated a new requirement to place the HIV status and date of test into the medical record. The electronic charting software was modified so that an HIV test date entry had to be made for nursing staff to continue their charting. Because we were meeting the originally targeted goal of 80%, the target was re-set to require that 90% of patients admitted to labor and delivery without a documented prenatal HIV test would receive the Rapid HIV screen unless the patient declined to be tested. A second target goal was set that 100% of the patients with a positive Rapid HIV test would have treatment initiated.

Summary data for calendar year 2008

In 2008 95-97% of admitted patients had HIV testing completed and the results available to the acute care perinatal nurse. Of those patients who tested positive prenatally via the Rapid HIV test, none were positive on the confirmation Western Blot. The sophistication of the chart review did not provide the percent or numbers of initially positive patients prior to the acute care setting. During this time frame only one patient who presented with no prenatal care tested positive prior to delivery and was lost to our follow-up as she delivered at another local facility.

Intervention Case Examples

Innovation

A key strategy in implementing rapid HIV testing prior to labor and delivery is to have care providers informed of the law and the impact of HIV transmission. Educational sessions including case studies, clinician support materials, and patient educational materials have been shown to promote practice change (Burr, Storm, & Gross, 2006). Secondly, hospitals should collect data on patients that are admitted with documented prenatal HIV status, and strive for an eighty percent testing rate prior to implementation of the CDC guideline, which directs hospitals...
to obtain the HIV status on non-tested patients. Early testing in pregnancy allows sufficient time for counseling, confirmatory Western blot assay and antiretroviral prophylaxis (AAP, 2008). An eighty percent prenatal testing rate will increase the perceived importance of HIV testing to nurses, and make the adoption of the innovation more likely. Pregnant patients are tested for other infectious diseases routinely (Anderson & Sansom, 2006). A high perinatal HIV screening rate is realistic if it is presented to a patient in the same way as testing for other diseases.

*Communication Channels*

Practice alerts and emails (mass media channels) increase nursing knowledge of the importance of HIV testing and awareness of the nurse's role in securing testing for prenatal patients. Mass media channels are those means of transmitting messages that involve a mass medium, such as newspapers, emails etc., which enable one or a few individuals to reach an audience of many (Rogers, 2003). At the knowledge stage of the innovation mass media channels are the most rapid and efficient means of communicating change (Rogers, 2003). The first nursing education intervention involves the creation of online, computer-based instruction (CBI) that is accomplished through a series of online powerpoint-based modules with post tests. Two modules were created. The first described the Rapid HIV testing practice changes that impact the mother and newborn outcomes. It includes national statistics, recommendations for testing, “opt-out” versus “opt-in” consent process, and the step-by-step process of counseling, obtaining the test, and the treatment for positive HIV status. Using case studies, role playing and video clips, the second module addressed the HIV counseling process for a woman in labor (see table 1). According to Billings & Halstead (2005) case studies stimulate critical thinking and increase retention, associating the practical with the theoretical. CBI provides individualized learning that can be accessed at the learner's pace and incorporates adult learning principles of autonomy and self-direction (Franck, & Langenkamp, 2000).
### Table 1. Computer Based Education Module Slide Titles

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<tbody>
<tr>
<td>Statistics - CDC Stats and Recommendations</td>
<td>Formula for HIV Rapid Testing in Labor</td>
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<tr>
<td>Oregon State Law</td>
<td>Case 1: Early Labor: Positive Screen</td>
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<tr>
<td></td>
<td>Case 1: Key Points during labor</td>
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<tr>
<td></td>
<td>Case 1: Key Points during Postpartum Care</td>
</tr>
<tr>
<td>Opt-Out vs. Opt-In</td>
<td>Case 2: Early Labor &amp; No Prenatal Care</td>
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<td>Case 2: Key Points regarding every woman needing screening.</td>
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<tr>
<td>Informing the Patient</td>
<td>Case 3: Late Prenatal Care &amp; Ready to Deliver</td>
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<td>Case 3: Key Points on when to do HIV test</td>
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<tr>
<td>Prior to Testing Counseling</td>
<td>Role Play 1: Language as a Barrier</td>
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<td>Role Play 1: Use a phone interpreter</td>
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<tr>
<td>If Mother Delivers First?</td>
<td>Role Play 2: A Negative HIV test During Labor</td>
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<td></td>
<td>Role Play 2: Counseling about a Negative Test</td>
</tr>
<tr>
<td>If Mother Declines HIV Testing</td>
<td>Role Play 3: Active Labor, No Record, Unknown HIV Status</td>
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<tr>
<td></td>
<td>Role Play 3: Key Issues</td>
</tr>
<tr>
<td>Ordering the Rapid HIV Test</td>
<td>Role Play 4: No Record of HIV Test, Private Patient</td>
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<tr>
<td></td>
<td>Role Play 4: Key Points</td>
</tr>
<tr>
<td>HIV Test: Negative</td>
<td>Role Play 5: A Frightened Adolescent</td>
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<tr>
<td></td>
<td>Role Play 5: Key Points</td>
</tr>
<tr>
<td>HIV Test: Positive</td>
<td>Role Play 6: Possible HIV-Exposed infant</td>
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<td></td>
<td>Role Play 6: Key Points</td>
</tr>
<tr>
<td>Post-Test Counseling</td>
<td>Developing Your Script at the Bedside</td>
</tr>
<tr>
<td>AZT Orders</td>
<td>Key Points to Remember</td>
</tr>
<tr>
<td>Baby Born: Prior to Treatment of Mother</td>
<td>Video clip with RN and patient interaction built into module that portrays incorrect counseling for obtaining the Rapid HIV test and correct counseling.</td>
</tr>
<tr>
<td>HIV Positive - Discharge Plan</td>
<td></td>
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According to Rogers (2003) how-to knowledge consists of information needed to use an innovation properly, in the case of complex innovations the amount of how-to knowledge is much greater than less complex ideas. In order to address consistent nursing patient education about the rapid HIV screening test and the treatment process, the committee developed numerous education tools for the nurse and the patient.

A method of communicating practice change is through the use of an algorithm. According to Billings & Halstead (2005) algorithms are used for a complex procedure that involves many steps. This allows nurses to “spot” the most relevant information for problem solving. A nursing process algorithm was created with step-by-step instructions on how to obtain the HIV status from hospital admission through birth of the infant (See Figure 2). Three clinical pathways were addressed in the algorithm to ensure testing was done prior to birth, it included HIV negative test in this pregnancy, no HIV test results prenatally, and patient refusal during prenatal care. The committee felt that the algorithm was needed to teach content and guide the nurses through the different clinical scenarios that presented on labor and delivery.
Figure 2. Nursing Process Algorithm for Rapid HIV Testing

NURSING PROCESS ALGORITHM for:
Rapid HIV Testing

Labor patient arrives: Check prenatal records for HIV TEST RESULT during CURRENT pregnancy.

- Test results on prenatal records are Negative
- No HIV test results on prenatal
- HIV test was declined during prenatal care

Options:
A. Check portal for HIV test results
B. Call Provider's office if time allows.
C. Ask the patient if testing was done.

Discuss Rapid HIV Testing: Routine orders

Pl. Declines testing

Inform Patient: Peds Provider will be asking for her consent to test her newborn after delivery.
Document decline in the chart, Notify OB provider and Pediatric provider. The Pediatric provider is responsible for obtaining consent for Rapid HIV testing on the newborn. Note: Pediatric provider will be notified verbally by the RN or OB Provider at delivery.

Document decline in the chart, Notify OB provider and Pediatric provider. The Pediatric provider is responsible for obtaining consent for Rapid HIV testing on the newborn. Note: Pediatric provider will be notified verbally by the RN or OB Provider at delivery.

Patient has been informed about routine testing policy.

Draw blood for lab:
One lavender top tube & one Gold top tube
Order: “Rapid HIV 1/2 OB STAT” Results ready in 1 hour

Negative results

RN may give test results to patient. Document results in chart.

Positive

Results: Given by Provider
See: “HIV Treatment Algorithm”

Test newborn asap, but within 8 hours. Oral medication is started asap, but before 12 hours if positive. See “HIV Treatment Algorithm”.

NR 5/23/07
According to Harris (1997) clear consistent patient information is not being provided, even within a specialized nursing unit who would come into contact with the patient on a daily basis. In a study by Barber-Parker (2002) it was shown that nurses prefer teaching aids that are simple in format, checklist in style, brief in length, and include teaching content. In addition to completing the modules and following an algorithm, the committee developed scripting as a counseling/education tool. This tool helps nurses counsel and educate patients. A patient handout information sheet was developed on what women need to know about HIV testing and its importance (See figure 3). This allows the nurse to have consistent educational content for the patient.
Figure 3. Information Sheet: HIV Rapid Testing For Pregnant Women in Labor

HIV Rapid Testing For Pregnant Women in Labor

Information Sheet: What Women Need to Know

Experts recommend that all pregnant women should have an HIV test. In our hospital, an HIV test that gives us quick results is routine for all mothers in labor who have not had an HIV test in prenatal care. We follow this policy because so much can be done to protect the baby from acquiring HIV.

What is HIV and how is it transmitted?
- Human Immunodeficiency Virus (HIV) is the virus that causes AIDS.
- HIV is a serious illness that can affect a woman's health and her baby's health.
- One of the ways you can get HIV is by unprotected sexual intercourse. Therefore, all pregnant women may be at risk for HIV infection.

About the rapid HIV test
- It is a blood test.
- It is a screening test for the HIV virus. Positive results must be confirmed. There is the potential for false positive tests (Reference MIRIAD trial, rate 4/1000).
- It is routine for all mothers in labor who have not had an HIV test during prenatal care.
- Experts recommend this test for all pregnant women who were not tested during the pregnancy.
- Some women who are tested earlier in pregnancy may choose to have a Rapid test upon admission.
- You can decline to have the test. This will not affect your care or your baby’s care.

Why this test is important for you and your baby
- A woman with HIV can pass it to her baby during pregnancy, during childbirth, and by breastfeeding.
- If you have HIV infection, rapid testing will give us results quickly and allow you to get medicine during labor and delivery.
- This medicine will reduce the risk of passing HIV to your baby.
- Your baby will receive the same medicine after birth.
- Without treatment, the chance your baby will be infected is about 25%, or 1 in 4 babies.
- If women are given medicine during childbirth and their babies get medicine right after birth, we can reduce the risk of HIV transmission to about 10%, or 1 in 10 babies.
Lastly, a clinical practice change document for nursing and medical staff was created as a communication tool with specific information regarding the rapid HIV testing policy. This practice alert was sent out via electronic communication (email) as well as placed in a staff education folder with other HIV educational resources explaining the process of who, what, when, and what is needed from the staff (See figure 4).
Perinatal Practice Council
Practice Alert
Rapid HIV Testing Policy-Maternal

WHAT'S THE GOAL?
Prevent vertical transmission from mother to newborn of the HIV virus

WHO IS AFFECTED? All patients

WHY THE CHANGE?
Universal maternal screening for HIV per CDS recommendations with rapid antiretroviral treatment if HIV positive prior to delivery


WHAT WE NEED FROM YOU:
NURSING:
- Review the Rapid HIV Testing Healthstream Modules (policy & scripting)
- Screen every maternal admission for HIV status documentation
- Notify provider if there is no documentation-confirm if testing has been done (time is of the essence-this step only if you can reach the provider rapidly!)
- If no testing has been done, order the Rapid HIV Testing—draw two blood specimens; EDTA for the rapid test and serum for the western blot for confirmatory if indicated.
- Lab results within 1 hour. Negative test results reported to patient by nursing or provider. Positive results reported to patient by the provider with counseling.
- Antiretroviral IV treatment begun within goal time frame of two hours from admission-see attached HIV treatment algorithm.
- Adherence to confidentiality & legal parameters outlined in healthstream module.

HUCS:
- Review Rapid HIV Testing Healthstream Module
- Review lab test ordering: "Rapid HIV ½ ob stat
- Report any positive rapid HIV testing lab results to the RN/charge nurse.
- Adherence to confidentiality & legal parameters outlined in the healthstream module.
Time to Adoption of Change

This project needed to roll out quickly to prevent transmission of HIV to a newborn as well as meeting the intent of the January 2007 Oregon state law. Use of involuntary strategies such as laws or regulations can influence the rate of adoption. An involuntary strategy such as the use of pre-printed orders mandates that rapid HIV testing be completed if HIV status is unknown, potentially increasing the rate of adoption. If a nurse does not follow through with obtaining the HIV status or rapid HIV test an unusual occurrence must be filed and nursing leaders must investigate why the test was not completed. Leadership follow-up will hold the individual accountable and hopefully change behavior. According to Rogers (2003) this type of behavior mandates the acceptance of the innovation which increases the rate of adoption. In addition, placing standing orders in place immediately informs any woman in labor whose HIV status is unknown that she will be tested unless she declines (Bulterys et al., 2004).

Social Systems

Authority innovation decisions are made when the system or authority implements the innovation who possess power, status or technical expertise (Rogers, 2003). After six months of implementing the Rapid HIV testing the nurses continued to leave the HIV status blank (e.g., unknown). In a similar process for newborn safety nurses must document a patient’s Group B Streptococcus (GBS) test date and result. Therefore it was determined that the documentation for HIV test date and result could have the same structure. One structural intervention found in the literature for changing nurse behavior was the electronic charting field as shown in Clark et al., (2006) where a block was placed in the hospital’s electronic charting system that prevented providers from admitting women to the labor and delivery unit without documentation of their prenatal HIV status. Although nurses cannot stop the admission process, the documentation can force the entry of the date when the test was performed, thereby ensuring nurses will find the
actual test result (see Figure 5). The electronic documentation and lab ordering system can provide outcome data on patients tested. Data query may reveal the percent of all admitted patients with unknown HIV status, those tested, those who refused, or those with missing documentation. Follow-up with individual care providers and the nursing staff can be addressed by leadership to positively affect the rate of adoption.
Figure 5. Example of Forced Electronic Date Charting
Significance to Nursing

Although the literature addresses nursing education to increase HIV testing, variations in state policies, and barriers to implementation of universal testing sends a mixed message to nurses. Nursing’s role in perinatal HIV testing has been addressed in the recent literature. National and state health policy has improved HIV testing and treatment in pregnancy however receipt of prenatal care was the most important predictor of test and treatment offer (Sarnquist, Cunningham, Sullivan, & Maldonado, 2007). According to Kriebs (2008) it is necessary for nursing to consider ways in which the spread of infections (e.g., HIV) can be prevented and controlled (e.g., screening for HIV).

It has been shown that care provider education increases the general knowledge regarding HIV. This general knowledge helps providers see the advantages of prenatal HIV testing and the availability of treatments to reduce MTCT. However the literature does not address the percent of patients entering labor and delivery units without HIV testing and the effect of nursing interventions to increase testing rates. Nursing education, as recommended in this program implementation, is shown to have increases in the documentation of the HIV status leading to potential nursing interventions to reduce MTCT. A future resource for HIV testing education includes counseling specialists in HIV. Their immediate contact with patients and their wealth of real life case examples has great potential for helping nurses value the importance of acquiring the HIV test prior to delivery. This type of education with the other nursing interventions listed in this work may promise faster adoption of HIV protocols and testing before birth.

As more states adopt the CDC recommendation for opt-out testing, hospitals will need clinical practice recommendations to assist in obtaining the HIV status and ensuring treatment of positive status perinatal patients prior to delivery. The guidelines recommended in this study will highlight barriers to implementation of an opt-out policy, and provide guidance on obtaining the
HIV status. These suggestions will also help guide nursing practice to significantly reduce mother to child transmission - leading to higher quality of life, and reduce health care costs.

Need for Future Research

Even though evidence-based interventions are in place, there still remains an opportunity for patient care improvement since all patients are not being tested prior to delivery due to missed opportunities or patient refusal. Through informal interviews with nurses and maternal care providers after the program implementation, it was found that poor follow through with undocumented HIV status to the pediatrician places infants at risk. This lack of communication is an area that needs evaluation and further research. Multidisciplinary research (including patients, nursing, maternal and neonatal care providers) related to patient outcomes needs to focus on attitude barriers and types of counseling that produce the highest acceptance rate for testing. Future nursing research needs to focus on factors that influence screening practice of nurses in labor and delivery, specifically attitude and physical barriers to obtaining the HIV status. These factors may include: attitudes of nurses about HIV testing and counseling, time restraints, experience with implementing the guidelines, nurse’s compliance with state, CDC or prenatal practice recommendations, and patient interaction with the care suggested by the guideline.

A reliable electronic medical record data base must be created to analyze the patients entering without HIV documentation, refusal of HIV testing, and those receiving Rapid HIV testing in labor and delivery. This report is an essential component of the evaluation process to determine failures in counseling and work flow process. An electronic data base report is less time consuming than hand collection of data therefore process improvements can be timely. A state HIV reporting process to the birth facility is needed to determine if a missed positive
maternal HIV test potentially leads to a positive HIV infant, therefore the medical facility can evaluate and create opportunities for improvement.

Conclusion

Prenatal screening for HIV is a public health intervention that is critically needed to prevent any infant from obtaining this disease. The emotional cost to the family and associated health care costs alone signals a failure of our healthcare system to protect and treat. As access to care continues to escalate and become an even larger issue, we will likely see an increase in pregnant women with limited or no prenatal care. This may lead to more patients with undocumented HIV status and no knowledge of the importance of HIV testing prior to birth. Nurses are in a unique position to function as the first line of entry into the healthcare system for a woman without prenatal care to obtain the HIV test. In partnering with their medical colleagues we can help patients understand the importance of HIV testing. Creating a multidisciplinary task force to address barriers is the first step in implementing a structured program. Using Rogers' Diffusion of Innovation Theory the multidisciplinary team can assist in development of effective and timely nursing interventions in the labor and delivery unit. The ultimate outcome for all hospitals, obstetrical providers, and nurses is to decrease mother to child HIV transmission through consistent monitoring of HIV prenatal testing, identification of patients with missing HIV lab work, and critical education by nurses for patients with no prenatal care or missing HIV lab documentation.
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