

HIV TESTING WITHIN EMERGENCY DEPARTMENTS:
A DESCRIPTIVE STUDY ASSESSING BARRIERS AND POTENTIAL SOLUTIONS

A DISSERTATION
SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY
IN THE GRADUATE SCHOOL OF THE
TEXAS WOMAN'S UNIVERSITY

COLLEGE OF NURSING

BY
ROBIN LYNN HARDWICKE, B.S.N, M.S.N.

DENTON, TEXAS

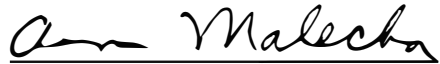
DECEMBER 2004

TEXAS WOMAN'S UNIVERSITY
DENTON, TEXAS

November 11, 2004

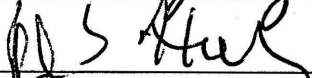
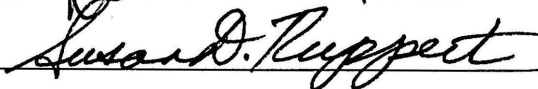
To the Dean of the Graduate School:

I am submitting herewith a dissertation written by Robin Lynn Hardwicke entitled "HIV Testing Within Emergency Departments: A Descriptive Study Assessing Barriers and Potential Solutions." I have examined this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy with a major in Nursing.



Ann Malecha, Major Professor

We have read this dissertation and recommend its acceptance:

Accepted:


Dean of the Graduate School

Copyright© Robin Lynn Hardwicke, 2005
All rights reserved.

DEDICATION

This work is dedicated to the special people who keep me striving for knowledge and understanding.

To my husband Keith who continues to remind me how much I already know.

To my daughter Laura who reminds me how much more I could know.

To all the people of the world who did not know...

Our doubts are traitors, And make us lose the good that we oft may win, By fearing to attempt

--William Shakespeare (1623/2004)

ACKNOWLEDGEMENTS

Great persons are able to do great kindnesses.

--Miguel de Cervantes (1605/2004)

I have been blessed throughout my life by family, friends, and mentors. I am indebted to those who have helped me to achieve nursing's highest degree. I am beholden to my teacher, mentor, and committee chair, Dr. Ann Malecha, for her constant support, guidance, and encouragement. I also sincerely appreciate the leadership and support of my committee: Dr. Anne Young, for insisting I could succeed as a PhD nurse; Dr. Jeff Huber, for teaching me the path for seeking knowledge; and Dr. Susan Ruppert, for channeling my nursing direction. I would have never begun this journey had not Dr. Stanley Lewis taken me under his wing, taught me about true disparities and placed passion in my heart.

I would also like to thank the TWU faculty for teaching me the true meaning of research; the TWU-Houston nursing secretarial staff, who understand that everything is a crisis, and my classmates.

I could not have survived this process without the love, encouragement and support of my family. There are no words that can express my thanks to my spouse and partner Keith Hardwicke and daughter Laura Lynn Hardwicke. I love you.

Finally, thanks to those who made personal contributions as friends: Isitri Modak, Evelyn Malone, Maggie Duplantis, Maria Steele, Penny Rodhe, Stephanie Estala, Georgie Brown, Catherine Bush, Debra Trimble and the Lewis family.

ABSTRACT

ROBIN LYNN HARDWICKE

HIV TESTING WITHIN EMERGENCY DEPARTMENTS: A DESCRIPTIVE STUDY ASSESSING BARRIERS AND POTENTIAL SOLUTIONS

DECEMBER 2004

This study examined individual practices of emergency department (ED) health care providers in regard to HIV testing and identified barriers to routine offering of HIV tests and potential solutions to overcoming those barriers. The study also looked at the association between demographic characteristics to offering testing. Via mail, 349 health care providers in EDs located in metropolitan areas of the United States with AIDS case rates ≥ 15 per 100,000 were surveyed. Surveys from 223 ED health care providers (64%) were completed, returned, and included in the analysis. Only 3.14% ($n=7$) of those surveyed indicated that they routinely offered an HIV test to all persons who sought care in the ED; 28% ($n=64$) offered tests to persons at risk, 53.36% ($n=119$) offered to persons presenting with symptoms of HIV infection, and 26.01% ($n=58$) routinely referred for HIV testing. Nearly all providers (93.27%; $n=208$) did not offer an HIV test to pregnant women. The greatest barriers to routine offering of HIV tests were: concern about logistics for follow up ($M=3.38$, $SD=0.74$) and posttest counseling requirements ($M=3.36$, $SD=0.67$). The top solution to overcoming the barriers was access to rapid screening tests ($M=3.14$, $SD=0.80$). Among the demographic differences there were only two values of significance, the ED health care providers number of years in practice $F(4, 223)=11.62$, $p < 0.0005$ and routinely offering an HIV test to all pregnant women by practice setting $\chi^2(4, N=215)=87.26$, $p=0.0001$. These results make it clear that ED health care providers do not routinely offer HIV testing. There are many barriers to routine testing but there are solutions that might assist in overcoming the barriers.

TABLE OF CONTENTS

COPYRIGHT.....	iii
DEDICATION.....	iv
ACKNOWLEDGEMENTS.....	v
ABSTRACT.....	vi
LIST OF TABLES.....	x
CHAPTERS	
I. INTRODUCTION.....	1
Problem of Study.....	2
Rationale of Study.....	2
Conceptual Framework.....	3
Assumptions.....	5
Research Questions.....	5
Definitions of Terms.....	6
Limitations.....	7
Summary.....	8
II. REVIEW OF THE LITERATURE.....	9
Introduction.....	9
General Overview of Prevalence.....	9
HIV Testing and Prevalence.....	12
Assumptions and Barriers to Testing.....	13
Solutions to Barriers.....	14
Provider Characteristics and Demographic Differences.....	14
Summary.....	15
III. PROCEDURES FOR COLLECTION AND TREATMENT OF DATA.....	17
Setting.....	17
Population and Sample.....	17
Protection of Human Subjects.....	20
Instrument.....	20
Data Collection.....	22
Treatment of Data.....	22
IV. ANALYSIS OF DATA.....	25
Description of Sample.....	25
Findings.....	30
Summary.....	34

V.	SUMMARY OF THE STUDY.....	35
	Summary.....	35
	Discussion of the Findings.....	36
	Conclusions of the Study.....	38
	Implications for Nursing.....	39
	Recommendations for Further Study.....	41
	REFERENCES.....	42
	APPENDIXES	
	A. Human Subjects Review Committee Approval.....	48
	B. Cover Letter.....	50
	C. HIV Barriers to Screening (HIV B-S) Questionnaire ©.....	52
	D. Standard Telephone Contact Message.....	58
	E. Follow- Up Reminder Postcard.....	60
	F. Demographic Difference Tables	62
	G. Routine Offering of HIV Test to All Pregnant Women by Practice Setting.....	102

LIST OF TABLES

Table

8. Two Stage Sample.....	19
9. Data Analysis Matrix.....	24
10. Distribution of Sample by Gender, Ethnicity, Race, Professional Training, Medical School Affiliation, Hospital Practice Setting, Trauma Level, and Region (N=223)....	27
11. Mean Years of Provider Experience (N=221).....	29
12. Prevalence of HIV/AIDS Knowledge of Institution Seroprevalence and Receipt of CDC HIV Testing Recommendations (N=223).....	30
13. Rank Order of Barriers to HIV Screening in Emergency Departments.....	31
14. Rank Order of Solutions to HIV Screening in Emergency Departments.....	33

CHAPTER 1

INTRODUCTION

Over the past two decades, human immunodeficiency virus and acquired immunodeficiency syndrome (HIV/AIDS) have devastated millions of individuals, families, and communities around the world. The number of reported HIV cases is steadily increasing globally, despite efforts at prevention. Currently an estimated 900,000 people in the United States (US) are infected with HIV, and an estimated 40,000 persons are newly infected each year (Centers for Disease Control and Prevention [CDC], 2001). A large proportion of newly infected individuals are unaware of their status (CDC, 1998; Marcus et al., 1993).

In the year 2000, surveillance reports indicated that 108 million patient visits were paid to emergency departments (EDs) in the US, an increase from 95 million in 1997 (McCaig & Ly, 2002). In many urban EDs, surveillance reports point to high rates of undiagnosed HIV infection among presenting patients and many patients who are at risk for developing HIV (Kelen, DiGiovanna, et al., 1995; Schoenbaum & Webber, 1993; Alpert, Shuter, DeShaw, Webber, & Klein, 1996). Many of these patients have poor access to healthcare and use EDs as a primary source of healthcare (Stern, Weissman, & Epstein, 1991). Taking this into account, the CDC revised its recommendations in 2001 from those initially published in 1993 regarding counseling and testing for HIV infection in health care settings. The CDC (1993, 2001) now recommends that hospitals with an HIV seroprevalence rate of at least 1% or an AIDS diagnosis rate ≥ 1 per 1,000 discharges should strongly consider adopting a policy of routinely offering HIV counseling and testing to patients ages 15-54. Tertiary settings such as hospital emergency departments are included for such CTR. Despite the CDC recommendations, however, little evidence of routine HIV testing in EDs has been identified. Since HIV was first recognized over 20 years ago, much has been learned about its epidemiology and treatment. The importance of early detection has benefits both for the person tested and society. HIV testing is an important prevention tool, since testing gives the counselor performing the test an opportunity to verbalize a prevention message that may enable the person

tested to remain negative or prevent further transmission with safer behaviors. Moreover, identifying an HIV seropositive person early allows greater opportunities for controlling the virus and thus offers a more productive and better quality life (CDC, 1993, 1998, 1999; Cleary et al., 1991; Gordin, Gibert, Hawley, & Willoughby, 1990; Rotheram-Borus & Futterman, 2000).

Problem of Study

The purposes of this descriptive, cross-sectional investigation were to examine the practices of ED health care providers in regard to HIV testing and identify barriers that prevent emergency department (ED) providers from routinely offering HIV tests. The study also looked at ways to overcome the identified barriers and examined demographic differences between health care providers who did and did not provide routine HIV testing.

Rationale for the Study

In 1993, and again in 2001, the CDC used prevalence data to establish service priorities in offering counseling, testing, and referral (CTR) for HIV. A study conducted in the early 1990s for acute care hospitals with > 1% HIV prevalence concluded that routine voluntary HIV testing of all patients within a specific age range was a feasible way to identify a large proportion of HIV-infected patients (Janssen et al., 1992). The 1993 guidelines for HIV CTR list hospital emergency departments as a setting where CTR services for HIV should be provided. Again in 2001, a technical expert panel review of the CDC recommended offering HIV tests in tertiary settings including emergency departments in areas with HIV seroprevalence >1% (CDC, 2001). Multiple studies have been performed in settings such as emergency medicine, obstetrics, and surgical units that identify the seroprevalence of HIV and the need for providing HIV testing (Jui, Stevens, Hedberg, & Modesitt, 1991; Nagachinta, Glod, Cheng, Heseltine, & Kerndt, 1996; Lindsay et al., 1993; Sturm, 1991; Shanson, 1991; Laporte, Mont, Jones, Padden, & Hungerford, 2001; Berry, LoCoco, Branch, Kinch, 1996). Unfortunately, there is little evidence in the literature that suggests routine HIV testing is being offered. Thus, research on the practices of health care providers in EDs is a priority.

Such research is also important to promote efforts to meet goal 13-7 of *Healthy People 2010*: “Increase the number of HIV-positive persons who know their serostatus (Department of Health and Human Services [DHHS], 2000).” Current estimates indicate that approximately 275,000 persons in the US are unaware that they are infected with HIV (CDC, 1999). Significant advances in the treatment of HIV/AIDS have been made over the last two decades, and early knowledge of HIV infection is now recognized as a critical component in controlling the spread of the virus. New treatments offer infected persons longer life as well as improved quality of life by reducing the risks for HIV-related morbidity and mortality. These advances in HIV prevention and treatment make it more important than ever for persons to learn of their HIV status. Routine HIV testing provides a unique way to identify persons at risk of infection. Routine HIV testing also affords an opportunity for prevention counseling as well as referrals of infected individuals to HIV health care providers (CDC, 2001). Infected persons tend to decrease behaviors that transmit the virus once they are aware of their HIV seropositive status (Cleary et al., 1991).

The importance of identifying a person’s seropositive HIV status is well documented (CDC, 1993; CDC, 1999; CDC, 2001; Kelen et al., 1989; Kelen, Shanhan, & Quinn, 1999; Rotheram-Borus & Futterman, 2000). The fact that 275,000 persons are infected with the virus and unaware is overwhelming. The rationale for not offering HIV tests in emergency departments in areas with high HIV or AIDS seroprevalence rates as defined by the CDC has not been examined, and that was the purpose of this research.

Conceptual Framework

The conceptual framework of the *public health system (PHS)* describes the performance of public health systems as well as that of agencies and programs (Handler, Issel, & Turnock, 2001). This framework provides a unifying concept to facilitate the measurement of public health system performance. In this study, the *PHS* allowed the ED to be evaluated in terms of structure and appropriate evaluation of process.

In the *PHS* framework, the structure for measuring public health system performance includes each component of the *PHS* and the relationships between components. The *PHS* framework contains five components: macro context, mission, structural capacity, processes, and outcomes. The public health

system is assumed to be an open system with associations that lead to interfaces and mutual amendments among the components (Handler et al., 2001).

The macro context represents the supra-system level and the milieu that directly or indirectly affects the existence and functioning of the public health system. As stated by Handler and colleagues (2001):

It incorporates phenomena such as the social, political, and economic forces operating in the overall society; the extent of demand and need for public health services within the population; and forces external to the public health system that exert pressure on it to function in particular ways (p. 1236).

The CDC, persons infected with HIV, technological advances in the management of HIV, the economic impact of HIV on society, and other factors are part of this macro context.

The mission of the public health system includes the goals of the system. One of the missions of *Healthy People 2010* is to increase the number of HIV-positive persons who know their serostatus (DHHS, 2000). This goal is a part of the public health system goal, which is to provide conditions in which people can be healthy (Institute of Medicine, 1988). Identification of individuals at risk for HIV infection and counseling of appropriate risk reduction behaviors while offering routine HIV testing are part of the public health system mission.

The structural capacity of the *PHS* is equal to the collective resources and interactions essential to carry out the fundamental processes of public health (Handler et al., 2001). The structural capacity of state and local health departments and of the institutions housing emergency departments plays a tremendous role in recommended practices. The structural capacity of the ED organization enables the implementation of specific public health practices such as offering routine HIV testing to all patients who present for care.

The fourth component of the *PHS* framework is process. The practice of public health is conceptualized in terms of processes through which health care providers seek to identify, address, and prioritize community or population wide health problems and resources (Harrell & Baker, 1994).

Identifying barriers to offering HIV testing in emergency departments and finding solutions to overcoming such barriers are aspects of process.

Finally, the fifth component of the *PHS* framework is outcomes. Implementing the system's planning and policy development processes generates interventions (outputs) intended to improve health status (Handler et al., 2001). Outcomes are the final ideal of success in the public health arena and are determined by achievement of all components of the framework.

Assumptions

The following assumptions of the study were based on Handler and colleagues' (2001) conceptual framework of the *public health system*:

1. Offering HIV testing in an ED provides patients health screening as well as a public health opportunity that may have been otherwise missed.
2. ED health care providers are most qualified to identify the barriers to routine offering of HIV testing in the ED.
3. ED health care providers are most qualified to identify potential solutions to barriers to offering HIV testing in the ED.
4. In order to provide holistic public health care in the ED, the ED public health system must first be evaluated.

Research Questions

The following research questions were posed for the study:

1. What is the prevalence rate of offering routine HIV tests in emergency departments (EDs) located in metropolitan areas in the United States (US) with an AIDS case rate of ≥ 15 per 100,000?
2. What are the barriers preventing health care providers in an ED from offering routine HIV tests to all patients who present to the ED for care?
3. What solutions do ED health care providers propose to overcome HIV testing barriers?
4. Do demographic differences exist between health care providers who provide routine HIV tests and providers who do not provide routine HIV tests in an ED?

Definition of Terms

The following terms were defined for the purpose of this study:

1. *Barrier*: Barrier is conceptually defined by the *American Heritage Dictionary* (2001) as something immaterial that impedes; a boundary or limit. In this study, a barrier was operationally defined as a scored response given by a health care provider on the HIV- BS Questionnaire (Appendix C).
2. *Routinely offer*: Routine is conceptually defined by the *American Heritage Dictionary* (2001) as not special; ordinary. In this study, routinely offer was operationalized as a scored questionnaire response to, "What is your individual practice with regard to routinely offering an HIV test in the emergency department?" (Appendix C).
3. *Test*: Test is conceptually defined by the *American Heritage Dictionary* (2001) as a procedure for critical evaluation of the presence, quality, or truth of something. For this study HIV test was operationally defined as a screening test offered to every patient 15 years of age or older who enters the ED seeking care.
4. *Seroprevalence rate*: Seroprevalence rate is conceptually defined by the *Medical Dictionary Search Engine* (2004) as the rate at which a given population tests positive on a test [on the HIV ELISA test for particular antibodies]. In this study a high seroprevalence rate was operationally defined as an AIDS case rate of ≥ 15 per 100,000 population.
5. *Emergency department*: An emergency room is conceptually defined by *Medline plus/ Merriam Webster Medical Dictionary* (2004) as a hospital room or area staffed and equipped for the reception and treatment of persons with conditions (as illness or trauma) requiring immediate medical care. An emergency department was operationally defined here as a unit in a hospital located in a metropolitan area with an AIDS case rate of ≥ 15 per 100,000 persons, as identified from a list supplied by the American Hospital Association.
6. *Health care providers*: Health care providers are conceptually defined by *Web Definitions* (2004) as physicians, pharmacists, registered nurses, nurse practitioners, and dentists who provide patient

care. A health care provider was operationally defined in this study as a registered nurse, nurse practitioner, physician assistant, and/ or physician practicing in an emergency department.

7. *Metropolitan area:* In the United States, the Office of Management and Budget (OMB) has produced a formal definition of metropolitan areas, which are organized around county boundaries. The general concept of metropolitan area is one of a large population nucleus, together with adjacent communities that have a high degree of economic and social integration with that nucleus. These are referred to as “Metropolitan Statistical Areas (MSAs)” (wordiq.com, 2004). A metropolitan area was operationally defined here as an area identified for study by the American Hospital Association following the direction of study standards and AIDS statistical areas.

Limitations

Several limitations to the study related to methodology. Data were collected via a postal self-administered questionnaire, and limitations of self-administered questionnaires have been reported in the literature (Aday, 1996). In particular, response sets such as social desirability and acquiescence are potential problems of self-report measures.

1. Although several advantages to self-administered questionnaires are conceivable, response rates may be low. A response rate of 60% is considered sufficient for most studies, but lower rates are common. Response rates for mail-out questionnaires frequently range between 60% and 70%, but response rates as low as 24% have been reported in studies examining physician practices (Gulitz, Bustillo-Hernandez, & Kent, 1998).
2. The sampling method may also have been a limitation in a survey of this magnitude. Although four types of providers were sampled, their practices may not have been representative of an entire profession or of the entire country.
3. Some ambiguities can occur in directly implementing the Hagan and Collier approach to sampling, and no extensive methodological research is available that compares this to other methods of respondent selection. Therefore, its limitations are unknown.

4. Several factors may contribute to measurement error. Response set biases can interfere with accurate measures of a target attribute.
5. Findings cannot be generalized to all populations, samples, and settings since data collected via a mailed questionnaire can only approximate actual practices.
6. No control can be expected over who agreed to complete the questionnaire and who actually did complete the survey.

Summary

HIV/AIDS is a public health crisis. To date an estimated 900,000 people have been infected in the US and 275,000 of those who are infected are unaware of that. The emergency department has been identified by the CDC as a target site for offering routine HIV tests. However, routine testing is not being conducted. This study utilized a descriptive approach to identify prevalence of offering tests, barriers to offering tests, solutions, and provider differences in relation to offering routine HIV tests in EDs located in at risk areas.

CHAPTER 2

REVIEW OF LITERATURE

Introduction

HIV/AIDS is consistently taking the lives of people in their third, fourth, and fifth decades of life. Every year HIV/AIDS remains in the top five leading causes of death in men aged 25-54 and women 35-44 in the US (CDCa, 2000). Moreover, minorities who have limited access to healthcare are disproportionately affected. Among black men, HIV/AIDS is the leading cause of death for those 35-44 years of age and the third leading cause of death for black men aged 25-34 and 45-54. This disease is the leading cause of death among black women aged 25-34 years (CDCb-c, 2000). Many deaths might be prevented if there were more early diagnosis and prompt access to care and treatment. The following paragraphs will review the current literature in regards to general HIV prevalence, HIV testing prevalence, assumptions and barriers to testing, solutions to barriers, and provider characteristics and demographic differences.

General Overview of Prevalence

Routine screening for HIV infection has been proposed for various units in the hospital setting. For example, between January 1, 1989 and July 31, 1995, voluntary preoperative screening was done for HIV infection in patients undergoing elective orthopedic procedures in a community based hospital (LaPorte, Mont, Jones, Padden, & Hungerford, 2001). Enzyme linked immunosorbant assay's were completed as an HIV screening test on 2,727 patients who underwent elective orthopedic surgical procedures. There were 2,719 (99.7%) negative, 4 (0.15%) positive, and 3 (0.11%) false-positive results. Although the prevalence of a positive test was low in this setting, the authors recommend the offering of HIV tests on a routine bases in a voluntary manner.

Recognizing missed opportunities, the CDC (1993) published recommendations for counseling and testing for HIV infection in inpatients and outpatients in acute-care hospitals. The recommendations

were prompted by information on the rates of unrecognized HIV infection among persons admitted to some acute-care hospitals and the potential benefits of recognizing HIV infections in persons who have not yet developed AIDS (Gordin, Gibert, Hawley, & Willoughby, 1990; Kelen et al., 1989). Despite these CDC recommendations, offering of HIV testing was infrequently provided in the ED (Fincher-Mergi et al., 2002; Wilson, Mitchell, Bradbury, & Chavez, 1999). The CDC revised the recommendations in 2001 to promote the appropriate use of HIV counseling and testing in acute-care facilities, with the expectation that EDs would adopt the guidelines. These guidelines suggest that all acute-care hospitals in which seroprevalence rates of HIV infection are at least 1% or the diagnosis rate for AIDS is ≥ 1 per 1,000 discharges strongly consider adopting a policy of routinely offering confidential voluntary counseling and testing for HIV infection to patients aged 15-54 years (CDC, 2001).

Since many people are utilizing the ED for their primary source of health care, active measures must be taken to assess the frequency with which HIV testing is offered routinely to people who seek care in this setting. Urban ED settings have been identified as an important public health area of interest and referred to as an area of high HIV/AIDS incidence (Kelen et al., 1989). The rate of HIV seroprevalence in the ED varies between 6.0% and 11.4%, and higher rates being more often found in urban populations (Kelen et al., 1989; Kelen, Hexter, et al., 1995). Using a cross-sectional design Kelen and colleagues conducted a 1989 study and conducted another in 1995 in a large inner-city university teaching hospital. The 1995 study used excess serum samples from all patients 15 years of age or older who presented to the ED and had blood drawn for a medical reason. During a 6-week period in 1992, 1,606 patients had blood drawn and were tested for HIV. Of those patients, 183 (11.4%) were seropositive. Comparisons for selected variables were made between this study and the 1989 study at the same ED. Fisher's exact test, or the Student's t-test showed a 90.7% rise in seropositivity over a 4-year span ($p < .01$). Seroprevalence rates among patients only at risk for heterosexual transmission increased more than fourfold (7% to 30.3%), and t-lymphocyte (CD4) counts were higher in those patients with undiagnosed HIV infection than in those with known HIV infection (Kelen et al., 1995). Thus, the ED visit offers an opportunity to diagnose HIV

infection, refer for consistent long-term management and prevent HIV health consequences and over-utilization of the ED.

Another study that analyzed recognition of HIV infection and associated risk factors was conducted by Schoenbaum and Webber (1993). From April 16, 1989, to May 5, 1989, the ED records of 2,102 consecutive patients 13 years of age or older were reviewed and, for 856 patients undergoing venipuncture, records were linked anonymously to results of HIV antibody tests in excess blood. HIV antibodies were detected in 7.8% of women (40/513) and 14.6% (50/343) of men. HIV infection was recognized in 30.0% (27/90) of known seropositives who were tested anonymously. HIV infection was three times more likely to be recognized among men than among women: 40% (20/50) of men compared with 17.5% (7/40) of women ($R=3.1$; 95% $CI=1.2, 8.5$). This cross-sectional study is probably the first systematic investigation to demonstrate the lack of recognition of HIV infection in women seeking care at an inner-city health care setting.

Among the etiological risk factors involved in HIV transmission, the most widely investigated have been homosexual transmission and intravenous drug use. A diverse population presents to the ED for care because of a lack of access to other health care. Identified risk factors include past or present intravenous drug use, multiple sexual partners, and sexual contacts with people who have HIV (Cleary et al., 1991; Lee, 2001). Other people at risk included women living in areas of high HIV seroprevalence, recipients of blood transfusions from 1978 to 1985, and patients with other sexually transmitted diseases (Robertson, 1996). These risk factors may or may not be identified or even assessed during an episodic visit to the ED however, allowing another missed opportunity for diagnosing a public health threat.

A systematic review of the emergency medicine literature was performed by Rothman, Ketlogetswe, Dolan, Wyer and Kelen (2003) to assess the appropriateness of offering routine HIV screening to patients in the ED. Independent searches using OvidR, PubMed, MD consult, and Grateful Med were performed by two reviewers to identify relevant abstracts. Fifty-two relevant abstracts were reviewed; of these, nine were selected for detailed evaluation. Seven ED-based prospective cross-sectional seroprevalence studies found HIV rates of 2-17%. Two studies demonstrated feasibility of both standard

and rapid HIV testing in the ED, with more than half of the patients approached consenting to testing by either method, consistent with voluntary testing acceptance rates described in other settings. The authors concluded that multiple ED- based studies meeting the CDC and Prevention Guidelines threshold to recommend routine screening, in conjunction with limited feasibility trials and extrapolation from cost-benefit studies provide evidence to recommend that EDs offer HIV screening to high-risk patients or high-risk populations.

HIV Testing and Prevalence

In this study the first research question addressed the lack of evidence of routine HIV testing or offering of HIV testing in the ED. Only two studies have examined the prevalence of offering HIV testing in EDs (Fincher-Mergi et al., 2002; Wilson et al., 1999). Wilson and colleagues (1999) evaluated common practices of ED practitioners in performing the recommended HIV testing practices particularly for patients presenting with other sexually transmitted diseases (STDs). A list of EDs with residency training in emergency medicine was obtained from the October 1995 National Board of Emergency Medicine, and self-administered surveys were mailed to residency directors of 112 emergency medicine programs in the United States. Ninety-five (85%) academic institutions with residency training in emergency medicine across the US responded, but only 3 of the 95 (3.2%) provided HIV testing in a routine manner and only to those presenting with an STD. This research did not even mention offering routine HIV testing to individuals other than those presenting with a special circumstance such as an STD, needle stick, rape, or to patients suspected of actual HIV infection by criteria other than STDs (Wilson et al., 1999).

Fincher-Mergi and colleagues (2002) evaluated HIV counseling, testing, and referral practices of ED health care professionals in 14 EDs in a northeastern US county, for patients presenting to the ED with STDs. Three hundred seventy-seven surveys were distributed anonymously via mail and 154 (41%) were returned. Just 10% of the professionals always or usually encouraged these particular patients to consent to HIV testing in their ED (Fincher-Mergi et al., 2002).

These studies reveal that health care providers frequently fail to provide HIV testing not only to the general patient population but even to those who present with STDs. Additional research however,

needs to be performed in a larger geographical area and with a larger sample of the population in order to gain a more accurate account of actual practices in routinely offering HIV tests.

Assumptions and Barriers to Testing

The second research question in this study dealt with barriers to offering HIV testing in EDs. The literature suggests that EDs often serve as the only source of medical care for many patients, and paradoxically, responsibility for preventive care is shifting to ED providers (Babcock, Wyer, & Gerson, 2000; Kelen, Shahan, & Quinn, 1999; Stern, Weissman, & Epstein, 1991). As EDs become the point of entry into the field of primary care services for many hospitals, it is essential to identify the reasons for such a low response to the CDC recommendations on offering HIV testing. Several explanations as to why EDs do not perform primary testing for HIV have been noted, including: time constraints, expense, logistics of follow-up and medical-legal implications (Wilson et al., 1999).

Fincher-Mergi and colleagues (2002) identified barriers to offering routine HIV screening to ED patients, including: follow-up concerns (51%), not certified to provide pretest/posttest counseling (45%), too time consuming (19%), and HIV testing not available in their ED (27%). These barriers were expected by the researchers but additional information and study was recommended.

Barriers to universal prenatal HIV testing were evaluated by Royce and colleagues (2001) in a sample of women who gave birth in 1997 at seven hospitals in four states. All hospitals were teaching hospitals where care was financed by a number of different public and private sources. The selection procedure was designed to obtain a representative sample of approximately 200 parturient women per hospital. A total of 1,362 parturient women were interviewed by centrally trained interviewers in a structured interview lasting approximately 10 minutes. Information was gathered about prenatal care, socio-demographic factors, and HIV counseling and testing during pre-pregnancy and prenatal care. To determine women's perceptions of the strength of the provider's recommendation of testing, participants were asked whether they thought their prenatal care provider wanted them to be tested for HIV not at all, a little, some, much, or very much. The researchers elicited reasons for not being tested with open-ended questions. Reasons were coded independently by two readers, and one investigator resolved discrepancies.

Of the total sample, 1,192 women (89.9%; 95% *CI*= 88.1%, 91.5%) reported being offered an HIV test during a prenatal visit, including 56 women who had not received information about HIV/AIDS at the prenatal clinic. Of the 134 women who said they were not offered an HIV test, 74 reported receiving no information on HIV/AIDS. Health care providers' recommendation strongly influenced women's decisions on prenatal testing, independently of other factors. Among women who perceived that providers strongly recommended testing, 93% were tested, a proportion 2.2 times greater than that among women who perceived that providers did not recommend testing. Barriers to practitioners strongly recommending universal HIV testing in prenatal settings have been found to include inexperience, discomfort with discussing HIV, and a lack of time (Royce et al., 2001).

Solutions to the Barriers

The third research question was to examine possible solutions to overcoming barriers to offering routine HIV testing in the ED. As noted in the literature, physical barriers as well as educational barriers prevent offering of HIV tests (Fincher-Mergi et al., 2002). However, no research has examined specific solutions to these barriers.

Availability of easier, less time consuming modes of testing as well as adequate training and preparation for counseling may be sufficient solutions to overcoming barriers that prevent the routine offering of HIV tests in the ED. However, given the limited research available on solutions, it is essential to evaluate the potential of various solutions.

Provider Characteristics and Demographic Differences

Finally, this researcher examined differences in the demographics of health care providers who did and did not routinely offer HIV testing in the ED. As discussed above, multiple studies over the last two decades point to the need for HIV testing in the ED (Kelen et al., 1989; Kelen et al., 1995; Schoenbaum & Webber, 1993). Most of these studies have been conducted in academic settings; however, little information is available about testing in non-academic settings (Kelen et al., 1989, Kelen et al., 1995, Wilson, et al., 1999). Research by Wilson and colleagues (1999) revealed that even in academic EDs

testing for HIV varies. Unfortunately, this research did not evaluate the specific demographics of respondents.

One study that evaluated HIV CTR practices of ED healthcare practitioners for patients presenting with STDs was conducted in 14 EDs in a northeastern US county. Advanced practitioners (i.e., MDs, PAs, and NPs) were compared to RNs to determine which providers were more likely to warn STD patients of their HIV risk, encourage testing in the ED, and refer STD patients elsewhere for HIV testing. Overall, respondents had an average of 11 years of clinical experience (range, 2-19). Respondents were 62% female and 30% male (8% did not answer). Advanced practitioners and RNs did not significantly differ in the reported frequency of encouraging patients to be tested for HIV ($p = 0.087$) or referring them to another facility for testing ($p = 0.196$). However, these providers differed in the reported frequency of warning patients about their HIV risk ($p < 0.001$). Advanced practitioners were more likely to always or usually warn suspected STD patients of their HIV risk (*odds ratio* = 5.9; 95% *CI* 2.6-13.3). However, only 10% of the providers always or usually encouraged patients with a suspected STD to consent to HIV testing in their ED (RN=7%, NP=25%, PA=0%, MD=16%) (Fincher-Mergi et al., 2002). This limited available literature suggests a need to identify specific provider demographics to identify a particular target for education and develop interventions to promote HIV testing practices in the ED.

Summary

The number of HIV and AIDS cases is growing across the globe. HIV and AIDS are being documented as leading causes of death in many age groups, reinforcing the need for early detection of the virus to ensure appropriate access to health care for disease management. Multiple studies have discussed the need for routine HIV testing in EDs. Each study produced reliable data with strong conclusions supporting HIV testing in EDs. Based on this science, the CDC has recommended that EDs offer and perform routine HIV testing.

Many patients with undiagnosed HIV present to the ED for reasons unrelated to infections. Health care providers thus have a golden opportunity to assess patient risk factors and offer voluntary HIV testing to all patients who provide informed consent. Although there is limited documentation that routine

voluntary HIV testing is not being offered, the assumptions are to the contrary. Additionally, a lack of information on the barriers to offering routine testing exists. Understanding what influences health care provider's decisions to offer or not to offer the test is a gap that needs to be closed.

CHAPTER 3

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

The prevalence of HIV testing in EDs and the barriers to the offering of such testing were identified using a descriptive, cross-sectional research design. Cross-sectional research involves the measurement of all variable(s) for all cases within a narrow time span so that the measurements may be viewed as contemporaneous. Essentially, data are collected at only one point in time, comparing different participants at different ages. One advantage of cross-sectional research is that it is more economical in time and cost than other designs. For the participants, there is only one period for data collection, and the researcher is not faced with the difficulty and cost of maintaining contact with subjects over a long period of time. Thus, a self-administered postal survey instrument was distributed to health care providers working in EDs in geographical areas with high seroprevalence rates of AIDS. Respondents indicated their practices, barriers, and potential solutions to overcome the identified barriers. Finally, the demographics of health care providers participating in the survey were evaluated.

Setting

The settings were emergency departments of hospitals in metropolitan areas across all 50 states in the US with an AIDS case rate ≥ 15 per 100,000 based on CDC December 2000 statistics. Annual AIDS cases per 100,000 population, by state and metropolitan area, were targeted due to the lack of 100% reporting of HIV cases by state.

Population and Sample

The research involved two-stage random sampling (Table 1). Stage I allowed for sampling of the population of hospitals with an ED (Sample I) in metropolitan areas with AIDS rates ≥ 15 per 100,000. An HIV/AIDS surveillance report for cumulative AIDS cases by metropolitan area and by state was obtained from the CDC and provided to the American Hospital Association (AHA). From this report an exhaustive

list of hospitals with emergency departments in the settings of interest was obtained. The list was then reduced to only those hospitals that reported >1000 annual ED visits in 2001 and were not listed as a children's hospitals (eligible population, $N=732$). A simple random sample was selected from this group of hospital emergency departments in order to ensure that the sample was representative of the population.

Sample II consisted of health care providers including registered nurses, nurse practitioners, physician assistants, and physicians (RN, NP, PA, MD) working in these emergency departments. Each targeted ED was contacted by telephone in an attempt to obtain the agreement of an MD, PA, NP, or RN to complete a brief questionnaire (Appendix C). The health care providers were asked to participate in a brief survey assuring its completion in 2-5 minutes. No other survey identification was provided at this time to reduce sampling bias. Upon telephone contact with the first hospital, a request was made to speak with an MD or PA and at the second hospital an NP or RN was contacted. This alternation followed a random respondent selection procedure described as the Hagan and Collier method (Hagan & Collier, 1983), which is an effort to simplify the process of sampling in an alternating fashion and identify which individuals to interview. The approach allowed the researcher to ask to speak with a specific health care provider, for example, an RN. If no RN was available, the researcher asked to speak with an NP. The method continued until a health care provider volunteered to participate at each of the hospitals that had been randomly selected. Once the contact was obtained, an agreement was made verbally with the provider to complete the questionnaire and return the survey immediately. If the provider did not agree to participate, another telephone call was placed later in an attempt to reach a different provider. Informed consent was implied by the respondent's filling out the questionnaire and returning the questionnaire by mail.

Table 1

Two Stage Sample

	Sample I	Sample II
Target Population	Metropolitan area	MD, PA, NP, RN
Sample Frame	AHA list of eligible hospitals	Screening call to elicit provider respondents (preparing frame)
Sample Design	Simple random institutional sample	Hagan and Collier method Provider sample
Sample Elements	Hospital	Provider
Ultimate Sample Element		Provider

Note. MD: medical doctor, PA: physician's assistant, NP: nurse practitioner, RN: registered nurse

Sampling Estimation

Sample I was chosen using the Statistical Package for Social Sciences (SPSS) and a simple random sampling procedure. Sample II was chosen using the Hagan and Collier method (ask to speak with one of the four types of health care providers and if one not there, ask to speak with one of the counterparts). The probability of selection was based on the sampling fraction: n/N .

Given the objectives of the study, a sample of approximately 349 health care providers was necessary. The sample size estimation for the project was determined based on the largest objective sample estimate. Sample size estimation for a cross-sectional (one group) proportion was calculated as follows: $n = Z^2_{1-\alpha/2} P(1-P)/d^2$

For research question 1, the eligible population ($N=732$) was reduced by the estimated proportion ($p=0.03$; 3% of hospitals estimated to offer HIV testing in the ED) taking into account a desired precision tightly bound ($d=0.02$) to determine the estimated sample size ($n=279$). For the second and third research questions, no evidence was available in the literature to calculate sample sizes. The fourth research question assessed demographic characteristics of those who did and did not offer HIV testing in the ED. For this

analysis, the desired level of confidence was 95% and the desired level of precision was 0.05, thus the estimated sample size was 288 health care providers.

Adjustments were made to the sample to take into account attrition or poor response rates. To determine sample size adjustments based on finite population corrections, the following formula was followed: $\{fpc\} (1-n/N)$. Thus 61 persons were added to the sample to account for attrition or poor response rate. The final number surveyed was 349.

Protection of Human Subjects

Subjects participated in this study by responding to a survey questionnaire. Subjects were asked to complete the questionnaire and return the instrument to the researcher. Participation in the study was voluntary, and there were no consequences for refusal to participate. By completing the questionnaire, the respondents gave consent to use the information provided. A cover letter with specific instructions was provided to each subject (Appendix B). Personal identifying information connecting the answers on the questionnaire to the respondent was not requested. Texas Woman's University Institutional Review Board (IRB) approval was obtained prior to the onset of data collection. Confidentiality was maintained by the use of coded questionnaires, and no names were used on the survey (Appendix A).

Respondents were protected against the improper release of information by the use of unique identifying numbers that were assigned in advance of the questionnaire distribution by the researcher. The researcher kept all materials under lock and key, and only the researcher had access to respondents' information.

Instrument

The questionnaire, HIV Barriers to Screening (HIV B-S)© (Appendix C) consists of three parts in addition to a fourth section on general demographic data information; the instrument is self-administered. The instrument was developed by the researcher and tested in pilot work conducted in the summer of 2003. Questions were derived from the literature on possible barriers to offering routine HIV screening in emergency departments. Questions were also derived from content expert input.

The HIV B-S instrument was pilot tested for validity, reliability, stability, and feasibility. The instrument was examined for validity by a group of experts in the fields of HIV care, emergency medicine, and health survey development. Each of the experts was provided a copy of the questionnaire and asked to evaluate and make content recommendations. The experts agreed that the instrument had face validity. The instrument was then tested for reliability with a convenience sample of emergency nurse practitioner students ($n=12$) using the test-retest method. The sample found the instrument feasible, with a mean completion time of 3.1 ± 1.9 minutes. Measurements obtained were total offer score by reliability coefficient alpha (0.6957), composite scores for barriers ($r=0.77$), possible solutions ($r=0.80$), and information dissemination ($r=0.63$) by Pearson correlations (pair-wise deletion). These measures indicated that all values were stable and the instrument provided a reliable measure over time. The HIV B-S Questionnaire then is not only feasible, but also a reliable and valid tool to investigate testing practices and identify barriers and solutions to overcoming those barriers.

Part I

Part I of the four- part questionnaire assesses whether healthcare providers offer or do not offer HIV testing in emergency departments. This section evaluates the respondent's pattern of offering or not offering the test in terms of particular indices. The items are coded as binary variables (1=yes, 2=no).

Part II

Part II of the questionnaire assesses the barriers that prevent respondents from offering routine HIV testing to patients entering the ED and includes 26 individual indices. This list of potential barriers was obtained from previous literature and content expert responses. The barriers include both physical barriers and emotional or mental barriers. Responses are on a 4-point Likert scale of strongly agree, agree, disagree, and strongly disagree. A mean value for all responses is calculated for each respondent. A likert scale has been developed using tertiles to reflect low, medium, and high barrier potential.

Part III

Part III of the questionnaire identifies solutions to removing barriers to routine screening. This scale is composed of responses on a 4-point Likert scale similar to Part II.

Part IV

Part IV of the questionnaire, the demographic section includes questions on gender, ethnicity, race, professional training, ED setting, years in practice, medical school affiliate, practice setting, level of ED trauma, HIV rate, hospital AIDS diagnosis rate, and whether the ED has obtained CDC recommendations for HIV testing and information dissemination. The demographics chosen were based on those standard to current health survey questionnaires. Health care providers and academic settings were chosen in order to compare to previous literature.

Data Collection

The method used for collecting data was a postal, self-administered questionnaire. A postal survey was considered most appropriate and most cost effective for reaching respondents who were geographically located throughout the US. A number of measures were taken to assist in obtaining the greatest possible response rate such as initial telephone contact, priority mail and monetary incentives. Once randomly selected, a hospital ED was contacted via telephone. A request was made to speak with a particular healthcare provider following the Hagen Collier method. A brief description of the study was provided, the healthcare provider was asked to participate and a verbal agreement was made. Following this agreement a personalized cover letter (Appendix B) was attached to the questionnaire packet, along with a self-addressed, stamped return envelope, and the packet was sent the next day via overnight priority mail. A one-dollar bill research participation incentive was included in the packet.

Treatment of Data

The Statistical Analysis Software (SAS) was employed to calculate and analyze the data obtained. The investigator coded the raw data obtained from the survey respondents as numerical data and then entered the information into the computer. Missing information was coded as 99 and non-applicable data as 88. Data were cleaned by range checking, which verifies that only valid values are used for responses to a question, and by contingency checking, which verifies that responses between questions are consistent. The handling of missing data was done as smoothly as possible without imputation bias. Respondents with missing data were excluded.

Research Question 1

The first research question examined the prevalence of offering HIV testing in the ED. Respondents answered yes (1) if they routinely offered or no (0) if they did not routinely offer HIV testing. Descriptive statistics were used with measures of central tendency to describe the frequency of offering the test as well as the proportion/ percentage of respondents offering the test.

Research Question 2

The second research question assessed the barriers that prevent ED providers from offering an HIV test. Again, measures of central tendency were used to describe the frequency, percentage, and means of each. Total scores were then tabulated to assess the greatest perceived barriers to offering HIV testing in the ED.

Research Question 3

The third research question, identifying solutions to overcoming those barriers, was analyzed in a manner similar to Research Question 2. Measures of central tendency were used to describe frequency, percentage, and means of each solution. Total scores were tabulated to assess the most frequently suggested solutions to overcoming barriers to offering HIV testing in the ED.

Research Question 4

The fourth research question not only described the demographic characteristics of the respondents but determined which demographic characteristics were likely to predict HIV test offering. Chi-square tests of independence were calculated on each demographic characteristic in relation to each individual offering variable. The questionnaire was designed and administered to obtain individual item responses, not a cumulative score. Therefore, chi-square item analysis was conducted with follow-up chi-square comparisons made for each item that was statistically significant. Due to the magnitude of numbers of nonindependent tests the Bonferroni procedure was used as a precaution to reduce the probability of a Type I error. Alpha was set at 0.001 and the test was one-tailed (see table 2).

Table 2

Data Analysis Matrix

Study Objective	Independent Variable(s)	Dependent Variable(s)	Analytic Procedure
1. To determine the individual HIV testing practices of ED providers (RN, NP, PA, MD)		Offer HIV test	Frequency Percent
2. To identify barriers to offering routine HIV testing to all persons in the ED		Barriers	Percent, frequency, mean, standard deviation
3. To identify possible solutions to overcoming barriers to offering routine HIV testing to all persons entering the ED for care		Solutions	Percent, frequency, mean, standard deviation
4. Analyze the relationship of demographic characteristics to testing	Demographic characteristics	Offer HIV test	Percent, frequency, mean, chi-square, Bonferroni procedure

Note. RN: registered nurse, NP: nurse practitioner, PA: physician's assistant, MD: medical doctor

CHAPTER 4

ANALYSIS OF DATA

The study examined the prevalence of offering routine HIV tests in emergency departments (EDs) located in metropolitan areas in the United States with an AIDS case rate of ≥ 15 per 100,000. Barriers preventing health care providers from offering routine HIV tests to patients presenting to the ED for care as well as solutions to overcoming those barriers were also examined. Finally, differences between health care providers who do and do not provide routine HIV tests were explored. A health survey questionnaire, HIV Barriers to Screening (HIV B-S)©, was used to collect data. Descriptive statistics were used to summarize demographic data and data on test offering, barriers and solutions. Data related to differences among health care providers who do and do not offer HIV tests were analyzed using Chi-square tests of independence.

Description of Sample

Over a 4- week period, a randomized sample of 349 hospital EDs was obtained and telephone contact made with a health care provider in each ED. Verbal agreement to complete the questionnaire was obtained from the providers. During the 4- week period, 349 questionnaires were mailed to individuals who agreed to participate. Reminder cards were sent to 172 (49%) of the contacts after 2 weeks of no return (Appendix E). The total number of questionnaires returned was 233 (67%). Ten questionnaires were not used for analysis. Of those ten, six were returned without any answers. Three of the six contained a note indicating lack of desire to participate. One respondent telephoned and left a message indicating that she felt the researcher had not been forthright with information about the study. This respondent felt more information about the HIV specifics of the survey should have been presented up front. This survey was among those returned. Four questionnaires were received after the deadline and therefore, were not included in the analysis. The total number of questionnaires returned prior to the deadline with sufficient data for analysis was 223 (64%).

Interestingly, two physicians telephoned after receiving the questionnaire to voice concerns about the information in the cover letter: “The risks of your participation as a subject are minimal. You may experience consequences related to improper release of information.” Two questionnaires were received with the unique identification number cut from the survey. Five respondents returned the one-dollar bill incentive wishing good luck and suggesting the researcher purchase a cup of coffee while analyzing the data.

The sample was nearly equal in gender though there were slightly more women ($n=121$, 54.26%). Most of those surveyed considered themselves non-Hispanic ($n=207$, 92.83%) and white ($n=183$, 82.10%). The equality of the types of healthcare providers surveyed was extremely good using the Hagen-Collier method of subject alternation (NP= $n=52$, 23.32%, MD= $n=59$, 26.46%, PA= $n=53$, 23.77%, RN= $n=58$, 26.01%). The researcher had expected to have a much higher sample of RN’s and MD’s due to the fact that not every ED employs NP’s and PA’s. A majority of the EDs were not associated with a medical school ($n=140$, 62.78%) and were in community hospital settings (not for profit= $n=107$, 47.98%, for profit= $n=84$, 37.67%). Fewer had Level I trauma designations ($n=30$, 13.45%) suggesting the potential for more medical than surgical patients presenting to the ED (see Table 3).

Table 3

Distribution of Sample by Gender, Ethnicity, Race, Professional Training, Medical School Affiliation, Hospital Setting, Trauma Level, and Region (N=223)

Demographic	<i>n</i>	%
Gender (N=223)		
Male	102	45.74
Female	121	54.46
Ethnicity (N=221)		
Non Hispanic	207	92.83
Hispanic	14	6.28
Race (N=221)		
American Indian or Alaskan Native	3	1.35
Asian or Pacific Islander	14	6.3
Black	10	4.5
White	183	82.1
Other	11	4.9
Professional Training (N=222)		
Nurse Practitioner	52	23.32
Physician	59	26.46
Physician Assistant	53	23.77
Registered Nurse	58	26.01
Medical School Affiliation (N=221)		
Yes	81	36.32
No	140	62.78

Demographics	<i>n</i>	%
Hospital Setting (<i>N</i> =215)		
VA, military hospital	8	3.59
Community, not for profit	107	47.98
Community, for profit	84	37.67
County	16	7.17
Trauma Level (<i>N</i> =204)		
I	30	13.45
II	74	33.18
III	64	28.70
IV	36	16.14
Region (<i>N</i> =223)		
Northeast	88	39.46
South	16	7.17
Central	34	24.22
Southwest	36	16.14
West	29	13.00

Table 4

Mean Years of Experience of Emergency Department Health Care Providers (N=223)^a

Provider Type	<i>n</i>	<i>M</i>	<i>SD</i>	<i>df</i>	<i>F</i>	<i>p</i>
Nurse	52	7.75	6.26	4, 223	11.62	<0.0005
Practitioner						
Physician	59	13.88	9.14			
Physician	53	8.02	7.16			
Assistant						
Registered	58	16.63	7.99			
Nurse						

^aTwo respondents did not specify their professional training

Although the facilities chosen for this survey were identified as located in higher HIV/AIDS seroprevalence areas, the subjects surveyed were not aware of this. Only 34.08% (*n*=76) knew that their institution was in an area with a seroprevalence rate of HIV $\geq$ 1%. Only 17.94% (*n*=40) knew that their institution had an AIDS diagnosis rate of $\geq$ 1 per 1000 hospital discharges. Many felt their institution had not received information on the revised recommendations for HIV testing (CDC, 2001) (*n*=50, 22.42%) and a majority did not know (*n*=131, 58.74%) if their institution had received this information (see Table 5).

Table 5.

Prevalence of HIV/AIDS Knowledge of Institution Seroprevalence and Receipt of CDC HIV Testing Recommendations (N=223)

Demographic	N	%
In your opinion, does your institution reside in an area with a seroprevalence rate of HIV $\geq 1\%$? (n=222)	Yes n=76	34.08
	No n=57	25.56
	Not sure n=89	39.91
In your opinion does your institution have an AIDS diagnosis rate of ≥ 1 per 1000 hospital discharges? (n=222)	Yes n=40	17.94
	No n=53	23.77
	Not Sure n=129	57.85
Has your ED received information on the revised recommendations from the CDC for HIV testing in Hospital Emergency Departments? (n=221)	Yes n=40	17.94
	No n=50	22.42
	Not Sure n=131	58.74

Findings

Research Question 1

The first research question assessed the prevalence of offering routine HIV tests in EDs located in metropolitan areas in the US with an AIDS case rate of ≥ 15 per 100,000 population. Only 3.14% (n=7) of those surveyed indicated that they routinely offered an HIV test to all persons who sought care in the ED. Only 28.70% (n=64) offered an HIV test to persons “at risk” such as those presenting with a sexually transmitted disease (STD), those with an HIV+ partner, and those who were intravenous drug users (IDU). Only half (n=119, 53.36%) routinely offered an HIV test to persons who presented with symptoms of HIV infection and fewer (n=58, 26.01%) routinely referred all persons for HIV testing elsewhere. The vast majority did not routinely offer HIV testing to pregnant women either (n=208, 93.27%)

Research Question 2

The second research question examined the barriers perceived by health care providers, to routinely offering HIV tests to all patients that presenting to the ED for care. Twenty-six items were offered for consideration along with an opportunity to specify barriers not listed. The respondent could choose between strongly disagree (1), disagree (2), agree (3), or strongly agree (4) that each item listed was a barrier.

Those barriers with mean scores greater than 3 were considered strong barriers. The greatest perceived barriers were concern about logistics for follow- up ($M= 3.38, SD=0.74$) and posttest counseling requirements ($M= 3.36, SD=0.67$). Other strong barriers with a score of 3 or greater included return for follow-up, pretest counseling, giving positive results, lack of rapid test availability, and lack of time (Table 6).

Table 6.

Rank Order of Barriers to HIV Testing in Emergency Departments

Barrier	<i>M</i>	<i>SD</i>
Q. Concern of logistics for follow up	3.38	0.74
Y. Post-test counseling requirement	3.36	0.68
K. Patient must return for another visit to receive results	3.28	0.82
A. Pre-test counseling requirement	3.10	0.89
I. Concerns about informing patient they are positive	3.06	0.95
L. Rapid (20 minute) HIV test not available	3.03	0.95
O. Lack of time	3.00	0.89
C. Concern regarding privacy and confidentiality issues	2.95	0.92
G. Competing clinical priorities	2.93	0.87
M. Limited HIV/AIDS skills to do counseling	2.93	0.79
X. The ED is not an appropriate place to test for HIV	2.84	0.91

Barrier	<i>M</i>	<i>SD</i>
B. Consent process requirement	2.81	0.87
D. Administrative barriers such as paperwork	2.80	0.84
H. Lack of HIV related referral networks	2.62	0.89
N. Institutional costs	2.61	0.88
E. Knowledge regarding state laws	2.53	0.82
W. Not trained to provide counseling	2.53	0.92
S. Rarely think about offering test	2.36	0.76
F. Reimbursement	2.32	0.97
J. Cultural barriers	2.29	0.78
P. Language barriers	2.29	0.78
T. The patient needs to request it	2.19	0.77
U. Afraid of offending the patient	1.86	0.68
R. There are no barriers in my ED	1.75	0.78
V. Too embarrassed or uncomfortable	1.66	0.61

Research Question 3

The third research question identified solutions that could overcome the barriers preventing ED health care providers from routinely offering HIV tests to those who seek care in the ED. Again, respondents could choose between strongly disagree (1), disagree (2), agree (3), or strongly agree (4) with ten items listed.

The greatest perceived solution was to provide rapid screening tests, which would allow test results to be available at the same ED visit ($M=3.14$; $SD=0.80$). Simplified pre-test counseling- less time consuming for practitioner ranked next ($M=3.07$, $SD=0.70$) following pre/post-test counseling training for all medical personnel (NP, PA, MD) ($M=3.01$, $SD=0.75$). Again those solutions with means greater than

3.0 were considered most useful. Other solutions considered to be helpful included simplified pre-test counseling and pre- post-test counseling for all medical personnel (Table 7).

Table 7.

Rank Order of Solutions to HIV Testing in Emergency Departments

Solution	<i>M</i>	<i>SD</i>
B. Rapid screening tests; test results available at same visit	3.14	0.80
C. Simplified pre-test counseling—less time consuming for practitioner	3.07	0.70
E. Pre/post-test counseling training for all medical personnel (NP, PA, MD)	3.01	0.75
H. Dedicated in house HIV counselors	2.96	0.92
A. Easier laboratory tests such as non-invasive specimen collection	2.95	0.75
D. Pre/post-test counseling training for all nursing & support staff personnel (RN's, tech's, aide's)	2.94	0.83
F. Pre/post-test counseling training for all healthcare ED providers	2.87	0.81
G. Mandatory CEU/CME requirements related to HIV to increase awareness	2.48	0.85

Research Question 4

Finally, the fourth research question examined differences in demographic characteristics, including gender, ethnicity, race, professional training, medical school affiliation, practice setting, trauma level designation, and region, between those health care providers who did and those who did not provide routine HIV tests. Chi- square tests of independence were conducted on each demographic item of the HIV-BS instrument in relation to the five questions about routinely offering HIV tests (Question 1, HIV B-S; Appendix C). There was a lack of influence of all demographic variables in regard to HIV testing as indicated in Appendix F, Tables F8-F46. The results of routine offering of HIV tests to all pregnant women by practice setting did prove to be significant and is presented in Appendix G. Chi-square tests indicated a significant difference among practice settings, $\chi^2(4, N=215)= 87.26, p= 0.0001$. Veterans Affairs/ Military hospitals offer HIV testing more frequently than the other practice settings surveyed.

The important differences noted in the tables were in regards to stratification among demographic characteristics. When stratified by professional training, a significant difference was noted. RNs were least likely to routinely refer persons for HIV testing. Other differences that were noted with significance were those that exist between health care provider's number of years in practice ($df=4,223$, $F=11.62$, $p<0.0005$) and hospital practice setting when offering to pregnant women ($\chi^2=87.26$, $p<0.0001$). Generally, few differences were identified of statistical significance.

Summary

The clear majority of these health care providers were not routinely offering HIV tests to any patients who presented to the ED. Many providers felt there were barriers to routine offering of HIV testing in the ED; the greatest barriers were concern about logistics for follow-up and the posttest-counseling requirement. Most health care providers thought the ED was not an appropriate place to test for HIV. However, solutions to overcoming barriers to routine testing were offered. The most commonly perceived solution was providing rapid testing capabilities and specifically, allowing test results to be available at the same time of the ED visit. When the sample was stratified by professional training, a significant difference was noted. RNs were least likely to routinely refer persons for HIV testing. Other differences of significance existed between hospital practice settings and the health care provider's number of years in practice.

CHAPTER 5

SUMMARY OF THE STUDY

HIV/AIDS threatens the health and well being of men and women daily. Increasing numbers of men and women are infected with HIV and many are unaware of their seropositive status. The primary goals of the study were to discover the prevalence of routine offering of HIV testing to all ED patients, identify barriers to testing, and suggest solutions to overcoming barriers to testing. The framework utilized in this study was based on Handler, Issel, and Turnock's conceptual framework of five components considered in relationship to each other to measure performance of the public health system. This chapter includes a summary of the study, discussion of the study findings, conclusions, and implications for practice.

Summary

A descriptive, cross-sectional research design was used to primarily examine the HIV testing practices of health care providers employed in EDs across the country with high seroprevalence rates of HIV/AIDS. Findings identified barriers to routine HIV testing and identified solutions to overcome those barriers. Finally, demographic differences between those who routinely offered HIV tests and those who did not was assessed. Following approval by the Institutional Review Board for Human Subjects, a randomized sample of 349 hospitals with EDs in high HIV/AIDS seroprevalence geographic areas was obtained.

Once the hospital EDs were identified, contact was made by telephone to a health care provider, requesting verbal agreement to participate. The researcher provided a brief explanation and requested the participant to complete a survey to be sent by mail, on testing practices in the ED (Appendix D). More specific information was not provided in an effort to limit bias. A self-administered mail out questionnaire was distributed by overnight mail to names and addresses provided by those who agreed to participate. A cover letter accompanied the questionnaire providing specifics and potential risks (Appendix B). Return of

the questionnaire indicated consent. Rights of the subjects were protected by confidentially obtaining and maintaining data through use of numerical codes and secure file storage. The study included 223 of the 349 (64%) individuals who verbally agreed to complete the questionnaire. Although 64% was sufficient for the analysis, a higher return rate was anticipated due to the measures taken prior to distribution. The use of overnight mail may not have increased responses. This may be due to the fact that ED providers work random shifts and although contacts agreed to complete the survey and were aware the survey would come within 24 hours, some may not have been working the next day or several days and thus could not obtain the survey immediately. This delay may have caused lost or misplaced surveys that the respondent never obtained.

Demographic data were collected on gender, ethnicity, race, professional training, medical school affiliation, ED setting, trauma level designation and region. Descriptive statistics were used to summarize the demographic data. Analytical statistics were used to determine if there were demographic differences existed between those who did or did not routinely offer an HIV test in the ED. Descriptive statistics were also used to determine the proportion of those who did or did not routinely offer an HIV test, barriers that prevented offering the tests and solutions to overcome those barriers. Total summative scores were calculated for perceived barriers and perceived solutions.

Discussion of the Findings

The first research question was to examine the prevalence of offering routine HIV testing in the ED. Based on the CDC identification of hospital emergency departments as a setting for HIV counseling, testing, and referral (CTR), the researcher asked practitioners about their individual practice in regard to offering HIV tests in the ED. The results were rare to find someone who routinely offered HIV testing to all persons who presented to the ED ($n=7$, 3.14%).

The findings are consistent with the findings of a 1999 study by Wilson, Mitchell, Bradbury, and Chavez. In that study, 3% of those surveyed offered routine HIV testing to those who presented with an STD. In the current study the figure for those at risk was slightly higher ($n=64$, 28.70%). This increase could reflect the fact that the question listed at risk people as those who present with an STD, HIV+

partner, or IDU. A person who discloses an intimate relationship with an HIV+ partner may be more likely to be offered a test than one who presents with an STD.

Despite literature that supports offering testing to symptomatic persons presenting to the ED with unknown HIV seropositive status (Kelen et al., 1989; Kelen et al., 1995, Schoenbaum & Webber; 1993) only half of the health care providers ($n=119$, 53.36%) offered HIV tests to persons with symptoms of HIV infection. This finding is quite alarming.

This researcher found an insignificant difference between RNs and other practitioners in routinely referring patients to another facility for HIV testing. RNs were less likely to routinely refer patients for testing than other practitioners $\chi^2(4, N=222)=13.55, p=0.53$. This finding was congruent with previous research by Fincher-Mergi and colleagues (1999), that found no difference between advanced practitioners and RNs in the reported frequency of referring patients to another facility for HIV testing ($p=0.196$).

Finally, this researcher found that ED health care providers were not offering HIV testing to pregnant women. This finding may be because ED health care providers feel that testing has been done or is the responsibility of the obstetrician. As noted by Royce and colleagues (2001), however, many pregnant women are not offered an HIV test by their obstetric physician either. Therefore, pregnant women should not be overlooked in any setting and should be offered an HIV test by all health care providers.

As in the study done by Royce and colleagues (2001), many barriers were identified that prevent offering an important public health service. This researcher identified specific barriers such as health care provider's opinion of patient need for test, inexperience, discomfort discussing HIV and lack of time. Findings were that most health care providers were concerned about the logistics for follow-up to obtain the HIV test results. Another perceived barrier in this study was the posttest-counseling requirement.

Solutions extrapolated from barriers identified in other studies include availability of easier, less time consuming modes of HIV testing as well as adequate training and preparation for counseling. The current study confirmed that many health care providers believe there are solutions that will aid in overcoming barriers to routine offering of HIV testing. The solution that appeared most useful was rapid

screening tests that allow results to be available at the same time as the ED visit. This finding points to the need for studies to test solutions and determine if they increase routine offering of HIV tests in the ED.

Finally, this researcher examined differences in the demographic characteristics of health care providers who did or did not offer routine HIV testing in the ED. No prior research has documented stratified comparisons by demographic characteristics such as gender, ethnicity, race, trauma level designation, or region. Study findings did not identify any differences based on such characteristics. Analysis also did not find differences in providers who did or did not offer testing based on location in an academic medical setting. Significant differences were detected in health care providers, offering of routine testing based on number of years in practice ($F_{ratio}=11.62, p<0.0005$) and hospital practice settings in regards to offering an HIV test to pregnant women $\chi^2(4, N=215)=87.26, p<0.0001$. Assumptions may be extrapolated to these results however, further investigation is required. Speculation of cause for differences might include the thought that the nurses surveyed had an increased number of mean years of practice and may be lacking on the current impact of HIV and need for testing. In general the health care providers surveyed were unaware of the HIV/AIDS seroprevalence rate in their own community. In regards to the statistical significance of offering an HIV test to pregnant women by practice setting, financial means may play a role. Veteran's Affairs facilities may have more money to provide testing than county facilities and be an incentive to offering the test. Veteran's Affairs facilities are less likely to see pregnant women than others as well.

Conclusions of the Study

Based on the findings of the study, the following conclusions were drawn:

1. Health care providers are not routinely offering HIV testing in emergency departments even for people with risk factors, symptoms or pregnancy in metropolitan areas of high HIV/AIDS prevalence.
2. Multiple barriers prevent health care providers from routinely offering HIV testing in emergency departments. The top three perceived barriers are: concern about logistics for follow up, the

posttest counseling requirement, and the fact that the patient must return for another visit to receive results.

3. Almost two thirds of health care providers indicate that the ED is not an appropriate place to test for HIV.
4. Although ED health care providers do not believe the ED is an appropriate place to test for HIV, perceived viable solutions for overcoming the barriers to testing have been identified as: rapid screening tests, simplified pre-test counseling; a less time consuming process for the practitioner, and pre/posttest counseling training for all medical personnel (NP, PA, MD).
5. In general, the ED health care providers surveyed are unaware of the current HIV/AIDS epidemiology of their institution's geographic area. Neither are they aware of the current CDC recommendations for HIV CTR.

Implications for Nursing

Like many health care organizations, professional nursing organizations such as the American Nurses Association, the Association of Nurses in AIDS Care and the Emergency Nurses Association have committed their organizations to follow *Healthy People 2010*. One of the 2010 goals is to increase the number of HIV-positive persons who know their serostatus (DHHS, 2000). As professional caregivers, nurses have the ability to design and implement effective programs and interventions. However, the findings of the study indicated that not only are health care providers not offering routine HIV testing, but also the barriers that prevent such offering may be overcome. This information gives nurses a unique opportunity to play an important role in relation to HIV counseling, testing, and referral. Interventions provided can be beneficial to the patient, the institution, and society.

Based on the study, the following implications for nursing were derived:

1. The importance for nurses to be aware of local HIV/AIDS statistics to understand the implications for testing in their facility is also of priority. Very few health care providers know that their ED is located in an area with a seroprevalence rate of HIV $\geq 1\%$ ($n=76$, 34.08%) or an AIDS diagnosis rate of ≥ 1 per 1000 hospital discharges ($n=40$, 17.94%).

2. Once nurses are aware of their own epidemiological surroundings, the importance of educating other providers and administrators involved in general patient care and decision-making is paramount. This implication includes stressing the importance of offering counseling, testing, and referral (CTR) services in the ED.
3. Nurses should make efforts to be trained in CTR by an accredited service organization such as the local health department.
4. Nurses should screen all patients for potential risk factors and offer an HIV test in consultation with an NP, PA, or MD who can order the test based on local laws and institutional policy and procedures.
5. Nurses should support pregnant women and assure that all pregnant women are offered an HIV test regardless of the setting or previous offer.
6. Nurses should identify the barriers to routinely offering HIV tests and develop policies, programs, and referral processes that support ED CTR.
7. Nurses should write policies and procedures that assist in the implementation of rapid HIV testing in emergency departments. Tests may be CLIA waved and allow for testing at the patient bedside without strict laboratory support.
8. Nurses should involve themselves in groups and organizations that may develop easier means for posttest counseling requirements such as the Association of Nurses in AIDS Care (ANAC).

With the guidance of an emergency department nurse, an institution's response to offering CTR can be more efficient and effective. Either through formal education and policy development or evaluation of the steadily rising AIDS diagnosis, ED nurses can support and reinforce the institution's flexible line of defense and normal lines of resistance resulting in more efficient ED services to society. By understanding the issues surrounding HIV/AIDS and routinely counseling, testing, referring and advocating for HIV testing, the nurse becomes an effective intervener in the fight against HIV/AIDS.

Recommendations for Further Study

During the last decade, EDs have expanded their role as health care links to the community, serving as the only source of medical care for many patients. Consequently, the responsibility for preventive care is also shifting to ED health care providers. Future research should be directed to discovering the reasons health care providers oppose offering routine HIV testing in the ED or why they feel the ED is not an appropriate place to offer such CTR. Although an extensive review of the literature was performed, results were limited. The literature review examined other public health issues in regards to testing and barriers such as tuberculosis, gonorrhea, and syphilis. This researcher was unable to find supportive materials related to this research. Out of all problems, domestic violence is the only one addressed in the literature thus, confirming a need for this research.

Most health care providers in the study believe multiple barriers prevent them from offering routine HIV testing. However, the health care providers offered some solutions to overcoming the barriers. Based on these study findings, several recommendations for future research can be made:

1. Conduct research to increase the generalizability of the findings beyond the study sample.
2. Conduct another study to determine the reasons for differences among specific hospital practice settings.
3. Conduct similar studies to assess the routine HIV testing practices of primary care clinics and private and public practice clinics.
4. Research the underlying reason that ED health care providers are so strongly against testing for HIV in EDs.
5. Research the reason health care providers do not routinely refer patients for HIV testing if they strongly believe the ED is not an appropriate place to perform the test.
6. Further investigate the lack of understanding for HIV/AIDS epidemiology. Determine if a lack of knowledge in regards to geographic epidemiology for HIV/AIDS is a reason for not offering HIV tests.

REFERENCES

- Aday, L. (1996). *Designing and conducting health surveys* (2nd ed.). San Francisco: Jossey-Bass.
- Alpert, P., Shuter, J., DeShaw, M., Webber, M., & Klein, R. (1996). Factors associated with unrecognized HIV-1 infection in an inner-city emergency department. *Annals of Emergency Medicine*, 28 (2), 159-164.
- American heritage dictionary* (4th ed.). (2001). New York, NY: Houghton Mifflin Company.
- Babcock, I., Wyer, P., & Gerson, L. (2000). Preventive care in the emergency department, part II: Clinical preventive services- an emergency medicine- based review. Society for academic emergency medicine public health and education task force preventive services work group. *Academy of Emergency Medicine*, 7 (9), 1042-54.
- Berry, D., LoCoco, S., Branch, D., Kinch, R. (1996). Prevalence of HIV in a largely obstetric population of Tarrant County Texas. *Texas Medicine*, 92 (3), 72-75.
- Centers for Disease Control and Prevention. (1993). Recommendations for HIV testing services for inpatients and outpatients in acute- care hospital settings and technical guidance on HIV counseling. *MMWR*, 42 (RR-2), 1-6.
- Centers for Disease Control and Prevention. (1998). Guidelines for treatment of sexually transmitted disease. *MMWR*, 47 (RR-1), 1-118.
- Centers for Disease Control and Prevention, (1999). Guidelines for national human immunodeficiency virus case surveillance, including monitoring HIV infection and acquired immunodeficiency virus case syndrome. *MMWR*, 48 (No. RR-13), 1-28.

- Centers for Disease Control and Prevention. (2000a). *10 leading causes of death, United States* Retrieved April 17, 2003, from <http://webapp.cdc.gov/cgi-bin/broker.exe>
- Centers for Disease Control and Prevention. (2000b). *HIV/AIDS surveillance in men*. Retrieved April 17, 2003, from <http://www.cdc.gov/hiv/stats.htm>
- Centers for Disease Control and Prevention. (2000c). *HIV/AIDS surveillance in women*. Retrieved April 17, 2003, from <http://www.cdc.gov/hiv/stats.htm>
- Centers for Disease Control and Prevention. (2001). Revised guidelines for HIV counseling, testing, and referral & revised recommendations for HIV screening of pregnant women. *MMWR*, 50 (RR-19), 1-58.
- Cleary, P., Van Devanter, N., Rogers, T., Singer, E. Shipton-Levy, R., Steilen, M., et al. (1991). Behavior changes after notification of HIV infection. *American Journal of Public Health*; 81,1586-1589.
- Department of Health and Human Services. (2000). *Healthy people 2010: national health promotion and disease prevention objectives*. Retrieved September 10, 2003, from <http://www.healthypeople.gov/document/HTML/Volume1/13HIV.htm>
- Fincher-Mergi, M., Cartone, K., Mischler, J., Pasieka, P., Lerner, B., & Billittier, A. (2002). Assessment of emergency department health care professionals' behaviors regarding HIV testing and referral for patients with STDs. *AIDS PATIENT CARE and STDs*, 16 (11), 549-553.
- Gordin, F., Gibert, C., Hawley, H., & Willoughby, A. (1990). Prevalence of human immunodeficiency virus and hepatitis B virus in unselected hospital admissions: implications for mandatory testing and universal precautions. *Journal of Infectious Disease*, 161, 14-17.
- Gulitz, E., Bustillo-Hernandez, M., & Kent, E. (1998). Missed cancer-screening opportunities among older women: A provider survey. *Cancer Practice*, 6 (6), 325-332.

- Hagan, D., & Collier, C. (1983). Must respondent selection procedures for telephone surveys be invasive? *Public Opinion Quarterly*, 47, 671-684.
- Handler, A., Issel, M., & Turnock, B. (2001). A conceptual framework to measure performance of the public health system. *American Journal of Public Health*, 91 (8),1235-1239.
- Harrell, J., & Baker, E., (1994). The essential services of public health. *Leadership Public Health*, 3 (3),27-30.
- Institute of Medicine. (1988). *The future of public health*. Washington, DC: National Academy Press.
- Janssen, R., St. Louis, M., Satten, G., et al. (1992). HIV infection among patients in U.S. acute care hospitals: strategies for the counseling and testing of hospital patients. *New England Journal of Medicine*,327,445-52.
- Jui, J., Stevens, P., Hedberg, K., & Modessit, S. (1991). HIV seroprevalence in emergency department providers: Portland Oregon, 1988-1991. *Academy Emergency Medicine*, 2 (9), 773-783.
- Kelen, G., DiGiovanna, T., Bisson, L., Kalainov, D., Sivertson, K., & Quinn, T. (1989). HIV infection in emergency department patients. *JAMA*, 262, 516-522.
- Kelen, G., Hexter, D., Hansen, K., Tang, N., Pretorius, S., & Quinn, T. (1995). Trends in HIV infection among a patient population of an inner- city emergency department: Implications for emergency department- based screening programs for HIV infection. *Clinical Infectious Disease*, 21, 867-875.
- Kelen, G., Shahan, J., & Quinn, T. C. (1999). Emergency department- based HIV screening and counseling: Experience with rapid and standard serologic testing. *Annals of Emergency Medicine*, 33 (2), 147-155.

- LaPorte, D., Mont, M., Jones, L., Padden, D., & Hungerford, D. (2001). Human immunodeficiency virus testing for elective orthopedic procedures : results in a community-based hospital. *Orthopedics*, 24 (1), 52-55.
- Lee, S. (2001). *AIDS: Young people dying of embarrassment- HIV report*. Inter Press Service. Retrieved March 3, 2003 from <http://www.aegis.com/news/ips/2001/IP011207.html>
- Lindsay, M., Grant, J., Peterson, H., Risby, J., Williams, H., & Klein, L. (1993). Human immunodeficiency virus infection among patients in a gynecology emergency department. *Obstetrics and Gynecology*, 81 (6), 1-12-1015.
- Marcus, R., Culver, D., Bell, D., Srivastava, P., Mendelson, M., Zalenski, R, et al.(1993). risk of human immunodeficiency virus infection among emergency department workers. *American Journal of Medicine*, 94, 363-370.
- McCaig, L., & Ly, N. (2002). National hospital ambulatory medical care survey: 2000 emergency department summary. *CDC Vital and Health Statistics*, 326, 1-32.
- Measure for Measure 1604, Text of Play; 1st folio, 1623* (2004). Retrieved October 10, 2004, from <http://www.wnoles.com/measure-measure/37446>
- Medical Dictionary Search Engine*. (2004). Retrieved April 28, 2004, from <http://www.booksmd/s/dic/seroprevalence.php>
- Medline Plus/ Merriam Webster Medical Dictionary*. (2004). Retrieved May 2, 2004 from <http://www.2.merriam-webster.com/cgi-bin/mwmednlm>.
- Nagachinta, T., Gold, C., Cheng, F., Heseltine, P., & Kerndt, P. (1996). Unrecognized HIV-1 infection in inner-city hospital emergency department patients. *Infection Control Hospital Epidemiology*, 17 (3), 174-177.
- Robertson, E., (1996). AIDS testing in the 1990's. *Primary Care Update OB/GYN's*, 3 (2), 50-57.

- Rotheram-Borus, M., & Futterman, D. (2000). Promoting early detection of human immunodeficiency virus infection among adolescents. *Archives of Pediatric and Adolescent Medicine*, 15, 4435-438.
- Rothman, R., Ketlogetswe, K., Dolan, T., Wyer, P., & Kelen, G. (2003). Preventive care in the emergency department: should emergency departments conduct routine HIV screening? A systematic review. *Academy of Emergency Medicine* 10 (3), 278-285.
- Royce, R., Walter, E., Fernandez, M., Wilson, T., Ickovics, J., Simonds, R., & et al. (2001). Barriers to universal prenatal HIV testing in 4 US locations in 1997. *American Journal of Public Health*, 91 (5), 727-733.
- Schoenbaum, M., & Webber, M. (1993). The under-recognition of HIV infection in women in an inner-city emergency room. *American Journal of Public Health*, 83 (3), 363-367.
- Shanson, D. (1991). Should surgical patients be screened for human immunodeficiency virus infection? *Journal of Hospital Infection*, 18 (suppl A), 170-176.
- Stern, R., Weissman, J., & Epstein, A. (1991). The emergency department as a pathway to admission for poor and high- cost patients. *JAMA*, 266, 2238-2243.
- Sturm, J. (1991). HIV prevalence in a midwestern emergency department. *Annals of Emergency Medicine*, 20 (3), 276-278.
- Web Definitions*. (2004). Retrieved May 2, 2004 from <http://www.google.com/search?hl=en&lr=&ie=UTF-8&oe=UTF-8&oi=defmore&q=define:health+care+providers>.
- Wilson, S., Mitchell, C., Bradbury, D., & Chavez, J. (1999). Testing for HIV: current practices in the academic ED. *American Journal of Emergency Medicine*, 17 (4), 354-356.

Word IQ Definitions. (2004). Retrieved October 17, 2004 from

http://www.wordiq.com/definition/United_States_metropolitan_area

Works of Miguel de Cervantes, 1928 (2004). Retrieved October 17, 2004 from

<http://www.users.ipfw.edu/jehle/wcdq.htm>

APPENDIX A
HUMAN SUBJECTS REVIEW COMMITTEE APPROVAL

TEXAS WOMAN'S UNIVERSITY

DENTON DALLAS HOUSTON

Institutional Review Board

1130 John Freeman Blvd., Houston, Texas 77030 713/794-2074

MEMORANDUM

TO: Ann Malecha
Robin Hardwicke

FROM: IRB

DATE: June 28, 2004

SUBJECT: IRB Application

Proposal Title HIV testing within emergency departments: a descriptive study assessing barriers and potential solutions.

Your application to the IRB has been reviewed and approved.

This approval lasts for 1 year. The study may not continue after the approval period without additional IRB review and approval for continuation. It is your responsibility to assure that this study is not conducted beyond the expiration date.

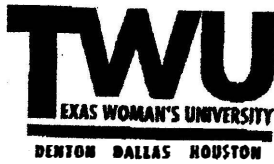
Any changes in the study or informed consent procedure must receive review and approval prior to implementation unless the change is necessary for the safety of subjects. In addition, you must inform the IRB of adverse events encountered during the study or of any new and significant information that may impact a research participant's safety or willingness to continue in your study.

REMEMBER TO PROVIDE COPIES OF THE SIGNED INFORMED CONSENT TO THE OFFICE OF RESEARCH, MGJ 913 WHEN THE STUDY HAS BEEN COMPLETED. INCLUDE A LETTER PROVIDING THE NAME(S) OF THE RESEARCHER(S), THE FACULTY ADVISOR, AND THE TITLE OF THE STUDY. GRADUATION MAY BE BLOCKED UNLESS CONSENTS ARE RETURNED.



William P. Hanten
Chairperson

APPENDIX B
COVER LETTER



College of Nursing
Houston Center
1130 John Freeman Blvd.
Houston, TX 77030-2897
713-794 2100 Fax 713 794-2103

August 10, 2004

Dear,

You have been selected to represent your discipline and your Public Health Region. Would you please complete the enclosed questionnaire? Your valuable input will help us understand the prevalence of HIV testing and the barriers to offering such testing that may exist in your area.

This research project is entitled: HIV Testing Within Emergency Departments
A Descriptive Study Assessing Barriers and Solutions under the direction of
Robin Hardwicke RN, PhD(c), FNP-C, AACRN, Texas Woman's University- Houston. You are one of approximately 349 health care providers across the United States who have been asked to participate. If you choose to participate, you will complete the enclosed questionnaire, regarding your usual clinical practices with patients aged 15 and older related to HIV testing and identification of barriers to HIV testing. This questionnaire will take approximately 5 minutes to complete.

The risks of your participation as a subject are minimal. You may experience consequences related to improper release of information. To protect your confidentiality, unique identifying numbers will be utilized. No names will be used on the questionnaire.

Your participation in this study is voluntary and you will not be penalized for not participating. There are no direct benefits to you for participating. If you have any questions regarding this study you may contact the investigator, Robin Hardwicke at (832) 689-6268. You may also contact the Office of Research at Texas Woman's University at (713) 794-2480.

Once you have finished the attached questionnaire, you may return it in the enclosed, stamped and addressed envelope. Please return the questionnaire within 24 hours of receipt. Return of this questionnaire indicates your consent to participate in this research study. Please keep the dollar bill as a token of thanks for participating.

Thank you for agreeing to be a part of this study.
Sincerely,

Robin Hardwicke RN, PhD(c), FNP-C, AACRN
Doctoral Candidate,
Texas Woman's University- Houston

Think SUCCESS  Think TWU

APPENDIX C

HIV BARRIERS TO SCREENING (HIV B-S) QUESTIONNAIRE©

Emergency Department Provider Instrument - HIV Barriers to Screening (HIV B-S)©
Completion and return of this questionnaire to the investigator serves as informed consent

1. What is **your individual practice** with regard to offering an HIV test in the Emergency Department (ED)? (Circle yes or no)

- | | | |
|---|-----|----|
| a. Routinely offer an HIV test to all persons who seek care | YES | NO |
| b. Routinely offer an HIV test to persons at risk,
i.e. STD's, HIV+ partner, IDU | YES | NO |
| c. Routinely offer an HIV test to persons with symptoms of HIV infection | YES | NO |
| d. Routinely refer all persons for HIV testing | YES | NO |
| e. Routinely offer an HIV test to pregnant women | YES | NO |

2. To what extent do you agree or disagree that the following are barriers to offering HIV testing to **ALL** persons who present to the ED? (Circle your answer)

BARRIER	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
a. Pre-test counseling requirement	1	2	3	4
b. Consent process requirement	1	2	3	4
c. Concern regarding privacy and confidentiality issues	1	2	3	4
d. Administrative barriers such as paperwork	1	2	3	4
e. Knowledge regarding state laws	1	2	3	4
f. Reimbursement	1	2	3	4
g. Competing clinical priorities	1	2	3	4
h. Lack of HIV related referral networks	1	2	3	4
i. Concerns about informing patient they are positive	1	2	3	4
j. Cultural barriers	1	2	3	4

BARRIER	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
k. Patient must return for another visit to receive results	1	2	3	4
l. Rapid (20 minute) HIV test not available	1	2	3	4
m. Limited HIV/AIDS skills to do counseling	1	2	3	4
n. Institutional costs	1	2	3	4
o. Lack of time	1	2	3	4
p. Language barriers	1	2	3	4
q. Concern of logistics for follow up	1	2	3	4
r. There are no barriers in my ED	1	2	3	4
s. Rarely think about offering test	1	2	3	4
t. The patient needs to request it	1	2	3	4
u. Afraid of offending the patient	1	2	3	4
v. Too embarrassed or uncomfortable	1	2	3	4
w. Not trained to provide counseling	1	2	3	4
x. The ED is not an appropriate place to test for HIV	1	2	3	4
y. Post-test counseling requirement	1	2	3	4
z. Other (please specify):	1	2	3	4

3. The following are possible solutions to overcoming barriers to offering HIV testing to **ALL** persons who present to the ED. To what extent do you agree or disagree to these solutions? (Circle your answer)

POSSIBLE SOLUTION	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
a. Easier laboratory tests such as non-invasive specimen collection	1	2	3	4
b. Rapid screening tests; test results available at same visit	1	2	3	4
c. Simplified pre-test counseling—less time consuming for practitioner	1	2	3	4
d. Pre/Post-test counseling training for all nursing & support staff personnel (RN's, tech's, aide's)	1	2	3	4
e. Pre/Post-test counseling training for all medical personnel (NP, PA, MD)	1	2	3	4
f. Pre/Post-test counseling training for all Healthcare ED providers	1	2	3	4
g. Mandatory CEU/CME requirements related to HIV to increase awareness	1	2	3	4
h. Dedicated in house HIV counselors	1	2	3	4
i. Other (please specify): _____	1	2	3	4

Please continue on next page

The following questions are about your individual and practice DEMOGRAPHICS for statistical purposes only:

4. What is your gender? (Check only **ONE** box)

- ☐ 1-Male
- ☐ 2-Female

5. What is your ethnicity? (Check only **ONE** box)

- ☐ 1-Hispanic
- ☐ 2- Non-Hispanic

6. What is your race? (Check only **ONE** box)

- ☐ 1-American Indian or Alaskan Native
- ☐ 2-Asian or Pacific Islander
- ☐ 3-Black
- ☐ 4-White
- ☐ 5-Other

7. In what area was your level of professional training? (Check only **ONE** box)

- ☐ 1-Nurse Practitioner (NP)
- ☐ 2-Physician (MD)
- ☐ 3-Physician Assistant (PA)
- ☐ 4-Registered Nurse (RN)

8. How many years have you been in practice, at that level, as an NP, MD, PA, RN (excluding residency or practicum)?

Record number of years: _____ years

9. Is your institution associated with a medical school? (Check only **ONE** box)

- ☐ 1-yes
- ☐ 2-no

10. What is your ED practice setting like? (Check only **ONE** box)

- ☐ 1-Veteran's affairs, military hospital
- ☐ 2-Community hospital- not for profit
- ☐ 3- Community hospital- for profit
- ☐ 4-County hospital

11. What level of Trauma does your ED offer? (Check only **ONE** box)

- ☐ 1-I
- ☐ 2-II
- ☐ 3-III
- ☐ 4-IV

12. In your opinion, does your institution reside in an area with a seroprevalence rate of HIV $\geq 1\%$? (Check only **ONE** box)

- ☐ 1-yes
- ☐ 2-no
- ☐ 3-Not sure/Don't know

13. In your opinion does your institution have an AIDS diagnosis rate of ≥ 1 per 1000 hospital discharges? (Check only **ONE** box)

- ☐ 1-Yes
- ☐ 2-No
- ☐ 3-Not sure/Don't know

14. Has your ED received information on the revised recommendations from the CDC for HIV testing in Hospital Emergency Departments?

CDC, (2001). Revised Guidelines for HIV Counseling, Testing, and Referral & Revised Recommendations for HIV Screening of Pregnant Women, MMWR; 50 (RR-19). (Check only **ONE** box)

- ☐ 1-Yes
- ☐ 2-No
- ☐ 3-Not sure/Don't know

15. From where do you obtain information about changing practice standards? (Circle yes or no)

- | | | |
|---|-----|----|
| a. Medical Journals (JAMA, NEJM, Academic Emergency Medicine) | YES | NO |
| b. National Conferences for your specialty | YES | NO |
| c. Regional or local conferences for your specialty | YES | NO |
| d. Grand rounds or departmental conferences at hospitals | YES | NO |
| e. Center for Disease Control | YES | NO |
| f. Websites | YES | NO |
| g. Departmental meetings | YES | NO |
| h. Other (please specify): _____ | YES | NO |

THANK YOU!

Your contribution to this effort is greatly appreciated. If you would like a summary of results, please print your name and address on the back of the return envelope. We will see that you receive it.

Please return the survey in the large Postage-Paid Envelope. If the envelope is lost, return the survey to:

Robin Hardwicke MSN, RN, FNP-C, 5707 McKnight, Houston, TX 77035

APPENDIX D
STANDARD TELEPHONE CONTACT MESSAGE

Hello:

My name is Robin Hardwicke and I am a doctoral candidate at Texas Woman's University in Houston, TX. Currently, I am conducting a survey to collect data for my dissertation. The survey consists of 3 parts and 12 demographic items. The expected length of time to complete the survey is 3-5 minutes. Once completed you would return the survey in the enclosed post paid envelope. Would you be willing to complete and return the survey to me?

(IF THE QUESTION ARISES...) The survey is about ED screening practices. I cannot give details of the questions in attempt to maintain a non-biased approach.

Thank you for agreeing. I will overnight mail the survey directly to you. Once you complete the survey, place it in the stamped, addressed envelope and return it to me.

May I please have your name and appropriate mailing address?

Thank you,

APPENDIX E
FOLLOW- UP REMINDER POSTCARD

Something on your mind? Did you forget something?



By now, you should have received a research questionnaire via overnight delivery. In order for me to complete my doctoral research, it is imperative that I receive your response. If you have already returned your survey,
THANK YOU!

SURVEY DUE BY AUGUST 27, 2004

Robin Hardwick, RN, PhD(c), FNP-C, AACRN
6707 McKnight
Houston, TX 77035

If you have misplaced your
survey and need to request
another one, you may do
so by:

- email: fnprobin@houston.rr.com
- phone: 832-689-6268

Thanks in advance.
Robin

APPENDIX F
DEMOGRAPHIC DIFFERENCE TABLES

Table F8

Routine Offering of HIV Test to All Persons by Gender (N=223)^a

Gender	% Offering Routine Screening	% Not Offering Routine Screening	χ^2	<i>p</i>
Male (<i>n</i> =102)	3.96 (<i>n</i> =4)	96.04 (<i>n</i> =97)	0.40	0.53
Female (<i>n</i> =121)	2.48 (<i>n</i> =3)	97.52 (<i>n</i> =118)		

^aOne respondent specified gender but did not answer question.

Table F9

Routine Offering of HIV Test to All Persons by Ethnicity (N=221)^a

Ethnicity	% Offering	% Not Offering	χ^2	<i>p</i>
	Routine	Routine		
	Screening	Screening		
Non Hispanic	3.4	92.6	0.64	1.00
(<i>n</i> =207)	(<i>n</i> =7)	(<i>n</i> =199)		
Hispanic	100	0		
(<i>n</i> =14)	(<i>n</i> =14)	(<i>n</i> =0)		

^a Two respondents did not specify ethnicity.

Table F10

Routine Offering of HIV Test to All Persons by Race (N=221)^a

Race	% Offering	% Not Offering	χ^2	<i>p</i>
	Routine Screening	Routine Screening		
American Indian or American Alaskan Native (<i>n</i> =3)	0 (<i>n</i> =0)	100 (<i>n</i> =3)	16.91	0.08
Asian or Pacific Islander (<i>n</i> =14)	0 (<i>n</i> =0)	100 (<i>n</i> =14)		
Black (<i>n</i> =10)	0 (<i>n</i> =0)	100 (<i>n</i> =10)		
White (<i>n</i> =183)	2.7 (<i>n</i> =5)	96.7 (<i>n</i> =177)		
Other (<i>n</i> =11)	9.1 (<i>n</i> =1)	90.9 (<i>n</i> =10)		

^a One respondent specified race but did not answer question; two respondents did not specify race.

Table F11

Routine Offering of HIV Test to All Persons by Professional Training (N=222)^a

Professional Training	% Offering Routine Screening	% Not Offering Routine Screening	χ^2	<i>p</i>
Nurse	1.92	98.10	1.44	0.70
Practitioner (<i>n</i> =52)	(<i>n</i> =1)	(<i>n</i> =51)		
Physician	5.10	94.92		
(<i>n</i> =59)	(<i>n</i> =3)	(<i>n</i> =56)		
Physician's Assistant	3.85	96.15		
(<i>n</i> =53)	(<i>n</i> =2)	(<i>n</i> =50)		
Registered Nurse	1.7	98.3		
(<i>n</i> =58)	(<i>n</i> =1)	(<i>n</i> =57)		

^a One respondent specified professional training but did not answer question; one respondent did not specify professional training.

Table F12

Routine Offering of HIV Test to All Persons by Medical School Affiliation (N=221)^a

Medical School	% Offering	% Not Offering	χ^2	<i>p</i>
Affiliation	Routine Screening	Routine Screening		
Yes	5.06	94.94	1.37	0.24
(<i>n</i> =81)	(<i>n</i> =4)	(<i>n</i> =76)		
No	2.120	97.84		
(<i>n</i> =140)	(<i>n</i> =3)	(<i>n</i> =137)		

^aTwo respondents did not specify medical school affiliation.

Table F13

Routine Offering of HIV Test to All Persons by Practice Setting (N=215)^a

Hospital Setting	% Offering	% Not Offering	χ^2	<i>p</i>
	Routine Screening	Routine Screening		
VA, military (n=8)	0 (n=0)	100 (n=8)	6.81	0.74
Community, not for profit (n=107)	1.9 (n=2)	97.2 (n=104)		
Community, for profit (n=84)	3.6 (n=3)	96.4 (n=81)		
County (n=16)	12.5 (n=2)	87.5 (n=14)		

^a Eight respondents did not specify hospital setting; one respondent specified hospital setting but did not answer question.

Table F14

Routine Offering of HIV Test to All Persons by Trauma Level Designation (N=204)^a

Trauma Level	% Offering	% Not Offering	χ^2	<i>p</i>
	Routine	Routine		
	Screening	Screening		
I	3.3	93.3	10.34	0.41
(<i>n</i> =0)	(<i>n</i> =1)	(<i>n</i> =28)		
II	2.7	97.3		
(<i>n</i> =74)	(<i>n</i> =2)	(<i>n</i> =72)		
III	6.3	93.8		
(<i>n</i> =64)	(<i>n</i> =4)	(<i>n</i> =60)		
IV	0	100		
(<i>n</i> =36)	(<i>n</i> =0)	(<i>n</i> =100)		

^a Nineteen respondents did not specify trauma level; one respondent specified trauma level but did not answer question.

Table F15

Routine Offering of HIV Test to All Persons by Region (N=223)^a

Region	% Offering	% Not Offering	X^2	p
	Routine Screening	Routine Screening		
Northeast	5.7	94.3	5.47	0.71
(n=88)	(n=4)	(n=84)		
South	0	100		
(n=16)	(n=0)	(n=16)		
Central	1.9	98.1		
(n=54)	(n=1)	(n=53)		
Southwest	0	100		
(n=36)	(n=0)	(n=36)		
West	3.1	96.4		
(n=29)	(n=2)	(n=27)		

^a One respondent specified region but did not answer question.

Table F16

Routine Offering of HIV Test to All Persons at Risk by Gender (N=223)^a

Gender	% Offering	% Not Offering	χ^2	p
	Routine Screening	Routine Screening		
Male	31.70	68.32	0.74	0.39
(n=102)	(n=32)	(n=69)		
Female	26.45	73.60		
(n=121)	(n=32)	(n=89)		

^a One respondent specified gender but did not answer question.

Table F17

Routine Offering of HIV Test to All Persons at Risk by Ethnicity (N=221)^a

Ethnicity	% Offering	% Not Offering	χ^2	<i>p</i>
	Routine	Routine		
	Screening	Screening		
Non Hispanic	27.5	72.0	4.44	0.62
(<i>n</i> =207)	(<i>n</i> =57)	(<i>n</i> =149)		
Hispanic	42.9	57.1		
(<i>n</i> =14)	(<i>n</i> =6)	(<i>n</i> =8)		

^a Two respondents did not specify ethnicity.

Table F18

Routine Offering of HIV Test to All Persons at Risk by Race (N=220)^a

Race	% Offering Routine Screening	% Not Offering Routine Screening	χ^2	<i>p</i>
American Indian or Alaskan Native (<i>n</i> =3)	33.3 (<i>n</i> =1)	66.7 (<i>n</i> =2)	8.92	0.54
Asian or Pacific Islander (<i>n</i> =14)	35.7 (<i>n</i> =5)	64.3 (<i>n</i> =9)		
Black (<i>n</i> =10)	10.0 (<i>n</i> =1)	90.0 (<i>n</i> =9)		
White (<i>n</i> =183)	27.3 (<i>n</i> =50)	72.1 (<i>n</i> =132)		
Other (<i>n</i> =11)	45.5 (<i>n</i> =5)	54.5 (<i>n</i> =6)		

^aOne respondent specified race but did not answer question; two respondents did not specify race.

Table F19

Routine Offering of HIV Test to All Persons at Risk by Professional Training (N=222)^a

Professional Training	% Offering Routine Screening	% Not Offering Routine Screening	χ^2	p
Nurse	25.0	75.0	3.16	0.37
Practitioner (n=52)	(n=13)	(n=39)		
Physician (n=59)	27.12 (n=16)	72.88 (n=43)		
Physician's Assistant (n=53)	25.00 (n=13)	75.00 (n=39)		
Registered Nurse (n=58)	37.93 (n=22)	62.07 (n=36)		

^a One respondent specified professional training but did not answer question; one respondent did not specify professional training.

Table F20

Routine Offering of HIV Test to All Persons at Risk by Medical School Affiliation (N=221)^a

Medical School Affiliation	% Offering Routine Screening	% Not Offering Routine Screening	χ^2	p
Yes (n=81)	25.32 (n=20)	74.68 (n=59)	0.59	0.44
No (n=140)	30.22 (n=42)	69.78 (n=97)		

^aTwo respondents did not specify medical school affiliation.

Table F21

Routine Offering of HIV Test to All Persons at Risk by Practice Setting (N=215)^a

Hospital Setting	% Offering	% Not Offering	χ^2	<i>p</i>
	Routine Screening	Routine Screening		
VA, military (<i>n</i> =8)	50.0 (<i>n</i> =4)	50.0 (<i>n</i> =4)	8.18	0.61
Community, not for profit (<i>n</i> =107)	27.1 (<i>n</i> =29)	72.0 (<i>n</i> =77)		
Community, for profit (<i>n</i> =84)	27.4 (<i>n</i> =23)	72.6 (<i>n</i> =61)		
County (<i>n</i> =16)	25.0 (<i>n</i> =4)	75.0 (<i>n</i> =12)		

^a Eight respondents did not specify hospital setting; one respondent specified setting but did not answer question

Table F22

<i>Routine Offering of HIV Test to All Persons at Risk by Trauma Level Designation (N=204)^a</i>				
Trauma Level	% Offering	% Not Offering		<i>p</i>
	Routine	Routine		
	Screening	Screening		
I	73.3	26.7	8.79	0.55
(n=30)	(n=8)	(n=21)		
II	27.0	73.0		
(n=74)	(n=20)	(n=54)		
III	29.7	70.3		
(n=64)	(n=19)	(n=45)		
IV	27.8	72.2		
(n=36)	(n=10)	(n=26)		

^a Nineteen respondents did not specify trauma level; one respondent specified trauma level but did not answer question.

Table F23

Routine Offering of HIV Screening to All Persons at Risk by Region (N=223)^a

Region	% Offering Routine Screening	% Not Offering Routine Screening	χ^2	p
Northeast (n=88)	27.3 (n=24)	72.4 (n=63)	4.69	0.79
South (n=16)	31.3 (n=5)	68.8 (n=11)		
Central (n=54)	27.8 (n=39)	72.2 (n=15)		
Southwest (n=36)	77.8 (n=28)	22.2 (n=8)		
West (n=29)	58.6 (n=12)	41.4 (n=17)		

^a One respondent specified region but did not answer question.

Table F24

Routine Offering of HIV Test to All Persons with Symptoms by Gender (N=223)^a

Gender	% Offering	% Not Offering	X^2	p
	Routine Screening	Routine Screening		
Male ($n=102$)	55.00 ($n=55$)	45.00 ($n=45$)	0.10	0.75
Female ($n=121$)	52.90 ($n=64$)	47.11 ($n=57$)		

^a Two respondents specified gender but did not answer question.

Table F25

Routine Offering of HIV Test to All Persons with Symptoms by Ethnicity (N=221)^a

Ethnicity	% Offering	% Not Offering	χ^2	<i>p</i>
	Routine Screening	Routine Screening		
Non Hispanic (<i>n</i> =207)	45.9 (<i>n</i> =95)	53.1 (<i>n</i> =110)	2.26	0.89
Hispanic (<i>n</i> =14)	42.9 (<i>n</i> =6)	57.1 (<i>n</i> =8)		

^a Two respondents did not specify ethnicity; two respondents specified ethnicity but did not answer question.

Table F26

Routine Offering of HIV Test to All Persons with Symptoms by Race (N=221)^a

Race	% Offering	% Not Offering	χ^2	<i>p</i>
	Routine Screening	Routine Screening		
American Indian or Alaskan Native (<i>n</i> =3)	100 (<i>n</i> =3)	0 (<i>n</i> =0)	6.10	0.81
Asian or Pacific Islander (<i>n</i> =14)	50.0 (<i>n</i> =7)	50.0 (<i>n</i> =7)		
Black (<i>n</i> =10)	40.0 (<i>n</i> =4)	60.0 (<i>n</i> =6)		
White (<i>n</i> =183)	53.0 (<i>n</i> =96)	47.0 (<i>n</i> =85)		
Other (<i>n</i> =11)	63.6 (<i>n</i> =7)	36.4 (<i>n</i> =4)		

^a Two respondents specified race but did not answer question; two respondents did not specify race.

Table F27

Routine Offering of HIV Test to All Persons with Symptoms by Professional Training (N=222)^a

Professional Training	% Offering Routine Screening	% Not Offering Routine Screening	χ^2	<i>p</i>
Nurse	50.0	50.0	4.73	0.19
Practitioner (n=52)	(n=26)	(n=26)		
Physician (n=59)	65.52 (n=38)	34.48 (n=20)		
Physician's Assistant (n=53)	46.15 (n=24)	53.85 (n=28)		
Registered Nurse (n=58)	53.45 (n=31)	46.60 (n=27)		

^aTwo respondents specified professional training but did not answer question; one respondent did not specify professional training.

Table F28

Routine Offering of HIV Test to All Persons with Symptoms by Medical School Affiliation (N=221)^a

Medical School	% Offering	% Not Offering	χ^2	<i>p</i>
Affiliation	Routine Screening	Routine Screening		
Yes	46.84	53.10	2.51	0.11
(<i>n</i> =81)	(<i>n</i> =37)	(<i>n</i> =43)		
No	57.10	42.10		
(<i>n</i> =140)	(<i>n</i> =80)	(<i>n</i> =59)		

^aTwo respondents did not specify medical school affiliation;, two respondents specified medical school affiliation but did not answer question.

Table F29 .

Routine Offering of HIV Test to All Persons with Symptoms by Practice Setting (N=214)^a

Hospital Setting	% Offering	% Not Offering	χ^2	p
	Routine	Routine		
	Screening	Screening		
VA, military	37.5	62.5	2.05	1.00
(n=8)	(n=3)	(n=5)		
Community, not	52.3	46.7		
for profit	(n=56)	(n=50)		
(n=107)				
Community,	42.9	56		
for profit	(n=36)	(n=47)		
(n=84)				
County	50	50.0		
(n=16)	(n=8)	(n=8)		

^a Eight respondents did not specify hospital setting; two respondents specified hospital setting but did not answer question.

Table F30

*Routine Offering of HIV Test to All Persons with Symptoms by Trauma Level Designation**(N=203)^a*

Trauma Level	% Offering	% Not Offering	χ^2	<i>p</i>
	Routine Screening	Routine Screening		
I	43.3	53.3	9.11	0.52
(<i>n</i> =30)	(<i>n</i> =13)	(<i>n</i> =16)		
II	55.4	44.6		
(<i>n</i> =74)	(<i>n</i> =41)	(<i>n</i> =33)		
III	48.4	50.0		
(<i>n</i> =64)	(<i>n</i> =31)	(<i>n</i> =32)		
IV (<i>n</i> =36)	55.6 (<i>n</i> =20)	44.4 (<i>n</i> =16)		

^a Nineteen respondents did not specify trauma level;; two respondents specified trauma level but did not answer question.

Table F31

Routine Offering of HIV Test to All Persons with Symptoms by Region (N=223)^a

Region	% Offering	% Not Offering	χ^2	<i>p</i>
	Routine Screening	Routine Screening		
Northeast (<i>n</i> =88)	46.6 (<i>n</i> =41)	51.1 (<i>n</i> =45)	6.72	0.57
South (<i>n</i> =16)	68.8 (<i>n</i> =11)	31.3 (<i>n</i> =5)		
Central (<i>n</i> =54)	55.6 (<i>n</i> =30)	44.4 (<i>n</i> =24)		
Southwest (<i>n</i> =36)	52.8 (<i>n</i> =19)	47.2 (<i>n</i> =17)		
West (<i>n</i> =29)	62.1 (<i>n</i> =11)	37.9 (<i>n</i> =18)		

^a Two respondents specified region but did not answer question.

Table F32

Routine Referral for HIV Test by Gender (N=223)^a

Gender	% Offering	% Not Offering	χ^2	p
	Routine Referral	Routine Referral		
Male	27.72	72.28	0.40	0.53
(n=102)	(n=28)	(n=73)		
Female	24.80	75.21		
(n=121)	(n=30)	(n=91)		

^a One respondent specified gender but did not answer question.

Table F33

Routine Referral for HIV Test by Ethnicity (N=221)^a

Ethnicity	% Offering	% Not Offering	χ^2	p
	Routine Referral	Routine Referral		
Non Hispanic	26.1	73.4	0.83	1.00
(n=207)	(n=54)	(n=152)		
Hispanic	28.6	71.4		
(n=14)	(n=4)	(n=10)		

^a Two respondents did not specify ethnicity; one respondent specified ethnicity but did not answer question.

Table F34

Routine Referral for HIV Test by Race (N=221)^a

Race	% Offering Routine Referral	% Not Offering Routine Referral	χ^2	<i>p</i>
American Indian or Alaskan Native (<i>n</i> =3)	33.3 (<i>n</i> =1)	66.7 (<i>n</i> =2)	3.23	0.98
Asian or Pacific Islander (<i>n</i> =14)	21.4 (<i>n</i> =3)	78.6 (<i>n</i> =11)		
Black (<i>n</i> =10)	10.0 (<i>n</i> =1)	90.0 (<i>n</i> =9)		
White (<i>n</i> =183)	27.0 (<i>n</i> =51)	71.6 (<i>n</i> =131)		
Other (<i>n</i> =11)	18.2 (<i>n</i> =2)	81.8 (<i>n</i> =9)		

^aOne respondent specified race but did not answer question; two respondents did not specify race.

Table F35

Routine Referral for HIV Test by Professional Training (N=222)^a

Professional Training	% Offering Routine Referral	% Not Offering Routine Referral	χ^2	<i>p</i>
Nurse	36.54	63.50	13.55	0.0036
Practitioner (<i>n</i> =52)	(<i>n</i> =19)	(<i>n</i> =33)		
Physician	32.76	67.24		
(<i>n</i> =59)	(<i>n</i> =19)	(<i>n</i> =39)		
Physician's Assistant	26.42	73.60		
(<i>n</i> =53)	(<i>n</i> =14)	(<i>n</i> =39)		
Registered Nurse	8.62	91.40		
(<i>n</i> =58)	(<i>n</i> =5)	(<i>n</i> =53)		

^a One respondent specified professional training but did not answer question; one respondent did not specify professional training.

Table F36

Routine Referral for HIV Test by Medical School Affiliation (N=221)^a

Medical School	% Offering	% Not Offering	χ^2	p
Affiliation	Routine Referral	Routine Referral		
Yes	28.75	71.25	0.44	0.51
(n=81)	(n=24)	(n=57)		
No	24.64	75.36		
(n=140)	(n=34)	(n=105)		

^a Two respondents did not specify medical school affiliation; one respondent specified medical school affiliation but did not answer question.

Table F37

Routine Referral for HIV Test by Practice Setting (N=214)^a

Hospital Setting	% Offering	% Not Offering	χ^2	<i>p</i>
	Routine Referral	Routine Referral		
VA, military (<i>n</i> =8)	25.0 (<i>n</i> =2)	75.0 (<i>n</i> =6)	5.36	0.87
Community, not for profit (<i>n</i> =107)	29.0 (<i>n</i> =31)	71.0 (<i>n</i> =76)		
Community, for profit (<i>n</i> =84)	23.8 (<i>n</i> =20)	75.0 (<i>n</i> =63)		
County (<i>n</i> =16)	31.3 (<i>n</i> =5)	68.8 (<i>n</i> =11)		

^a Eight respondents did not specify hospital setting; one respondent specified hospital setting but did not answer question.

Table F38

Routine Referral for HIV Test by Trauma Level Designation (N=204)^a

Trauma Level	% Offering	% Not Offering	χ^2	<i>p</i>
	Routine Referral	Routine Referral		
I	33.3	66.7	5.91	0.82
(<i>n</i> =30)	(<i>n</i> =10)	(<i>n</i> =20)		
II	23.0	77.0		
(<i>n</i> =74)	(<i>n</i> =17)	(<i>n</i> =57)		
III	23.4	75.0		
(<i>n</i> =64)	(<i>n</i> =15)	(<i>n</i> =48)		
IV	33.3	66.7		
(<i>n</i> =36)	(<i>n</i> =12)	(<i>n</i> =24)		

^a Nineteen respondents did not specify trauma level; one respondent specified trauma level but did not answer question.

Table F39

Routine Referral for HIV Test by Region (N=223)^a

Region	% Offering	% Not Offering	χ^2	<i>p</i>
	Routine Referral	Routine Referral		
Northeast	26.1	72.7	2.37	0.97
(<i>n</i> =88)	(<i>n</i> =23)	(<i>n</i> =64)		
South	25.0	75.0		
(<i>n</i> =16)	(<i>n</i> =4)	(<i>n</i> =12)		
Central	29.6	70.4		
(<i>n</i> =54)	(<i>n</i> =16)	(<i>n</i> =38)		
Southwest	25.0	75.0		
(<i>n</i> =36)	(<i>n</i> =9)	(<i>n</i> =27)		
West	20.7	79.3		
(<i>n</i> =29)	(<i>n</i> =6)	(<i>n</i> =23)		

^a One respondent specified region but did not answer question.

Table F40

Routine Offering of HIV Test to All Pregnant Women by Gender (N=223)^a

Gender	% Offering	% Not Offering	χ^2	p
	Routine	Routine		
	Screening	Screening		
Male	4.90	95.00	0.34	0.56
(n=102)	(n=5)	(n=95)		
Female	3.42	96.58		
(n=121)	(n=4)	(n=113)		

^a Six respondents specified gender but did not answer question.

Table F41

Routine Offering of HIV Test to All Pregnant Women by Ethnicity (N=221)^a

Ethnicity	% Offering	% Not Offering	χ^2	p
	Routine	Routine		
	Screening	Screening		
Non Hispanic	7.1	85.7	4.50	0.87
(n=207)	(n=8)	(n=194)		
Hispanic	3.9	93.7		
(n=14)	(n=1)	(n=12)		

^a Two respondents did not specify ethnicity; six respondents specified ethnicity but did not answer question.

Table F42

Routine Offering of HIV Test to All Pregnant Women by Race (N=221)^a

Race	% Offering	% Not Offering	χ^2	<i>p</i>
	Routine	Routine		
	Screening	Screening		
American Indian	33.3	66.7	23.72	0.07
or Alaskan	(<i>n</i> =1)	(<i>n</i> =2)		
Native				
(<i>n</i> =3)				
Asian or Pacific	0	92.9		
Islander	(<i>n</i> =0)	(<i>n</i> =13)		
(<i>n</i> =14)				
Black	0	90.0		
(<i>n</i> =10)	(<i>n</i> =0)	(<i>n</i> =9)		
White	4.4	94.0		
(<i>n</i> =183)	(<i>n</i> =8)	(<i>n</i> =172)		
Other	0	90.9		
(<i>n</i> =11)	(<i>n</i> =0)	(<i>n</i> =10)		

^aTwo respondents specified race but did not answer question; two respondents did not specify race

Table F43

Routine Offering of HIV Test to All Pregnant Women by Professional Training (N=222)^a

Professional Training	% Offering Routine Screening	% Not Offering Routine Screening	χ^2	<i>p</i>
Nurse	4.00	96.00	0.25	0.97
Practitioner (<i>n</i> =52)	(<i>n</i> =2)	(<i>n</i> =48)		
Physician (<i>n</i> =59)	3.51 (<i>n</i> =2)	96.49 (<i>n</i> =55)		
Physician's Assistant (<i>n</i> =53)	3.85 (<i>n</i> =2)	96.15 (<i>n</i> =50)		
Registered Nurse (<i>n</i> =58)	5.30 (<i>n</i> =3)	94.74 (<i>n</i> =54)		

^a Six respondents specified professional training but did not answer question; one respondent did not specify professional training.

Table F44

Routine Offering of HIV Test to All Pregnant Women by Medical School Affiliation (N=221)^a

Medical School	% Offering	% Not Offering	χ^2	p
Affiliation	Routine Screening	Routine Screening		
Yes	1.32	98.68	2.47	0.12
(n=81)	(n=1)	(n=76)		
No	5.84	94.16		
(n=140)	(n=8)	(n=130)		

^a Two respondents did not specify medical school affiliation; six respondents specified medical school affiliation but did not answer question.

Table F45

Routine Offering of HIV Test to All Pregnant Women by Trauma Level Designation (N=204)^a

Trauma Level	% Offering	% Not Offering	χ^2	p
	Routine test	Routine test		
I	10.0	86.7	13.00	0.60
(n=30)	(n=3)	(n=26)		
II	4.1	94.6		
(n=74)	(n=3)	(n=70)		
III	3.1	95.3		
(n=64)	(n=2)	(n=61)		
IV	2.8	88.9		
(n=36)	(n=1)	(n=32)		

^a Nineteen respondents did not specify trauma level; six respondents specified trauma level but did not answer question

Table F46

Routine Offering of HIV Test to All Pregnant Women by Region (N=223)^a

Region	% Offering	% Not Offering	χ^2	<i>p</i>
	Routine Screening	Routine Screening		
Northeast	2.3	95.5	16.60	0.17
(<i>n</i> =88)	(<i>n</i> =2)	(<i>n</i> =84)		
South	6.3	93.8		
(<i>n</i> =16)	(<i>n</i> =1)	(<i>n</i> =15)		
Central	0	98		
(<i>n</i> =54)	(<i>n</i> =0)	(<i>n</i> =53)		
Southwest	11.1	83.3		
(<i>n</i> =36)	(<i>n</i> =4)	(<i>n</i> =30)		
West	6.9	89.7		
(<i>n</i> =29)	(<i>n</i> =2)	(<i>n</i> =26)		

^a Six respondents specified region but did not answer question.

APPENDIX G

ROUTINE OFFERING OF HIV TEST TO ALL PREGNANT WOMEN BY PRACTICE SETTING

Table G47

Routine Offering of HIV Test to All Pregnant Women by Practice Setting (N=215)^a

Hospital Setting	% Offering	% Not Offering	χ^2	<i>p</i>
	Routine Screening	Routine Screening		
VA, military (<i>n</i> =8)	12.5 (<i>n</i> =1)	50.0 (<i>n</i> =4)	87.26	<0.0001
Community, not for profit (<i>n</i> =107)	2.8 (<i>n</i> =3)	96.3 (<i>n</i> =103)		
Community, for profit (<i>n</i> =84)	6.0 (<i>n</i> =5)	91.7 (<i>n</i> =77)		
County (<i>n</i> =16)	0 (<i>n</i> =0)	100.0 (<i>n</i> =16)		

^a Eight respondents did not specify hospital setting; six respondents specified hospital setting but did not answer question.