

TRANSLATION OF PUBLIC HEALTH THEORY INTO NURSING PRACTICE: OPTIMIZATION OF A NURSE-DRIVEN HIV TESTING PROGRAM IN THE EMERGENCY DEPARTMENT

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Contribution to Emergency Nursing Practice

- Describes the emergency nurse's role in public health screening initiatives.
- Quantifies specific strategies to optimize HIV testing in the emergency department, including the key role of nursing.
- Provides description of Centers for Disease Control and Prevention HIV testing guidelines and their translation into practice.

Across the United States, emergency departments serve as safety nets for millions of patients every year and provide unique access to vulnerable populations who do not otherwise interact with the health care system.¹⁻⁴ In addition, the emergency department has been shown to be a viable venue for screening for public health problems and initiating targeted interventions such as screening for alcohol use, initiating opioid treatment, smoking cessation, intimate partner violence screening, and HIV and hepatitis C virus screening and linkage to care.^{1,5-13} Some of these programs have made the transition from pilot research studies to integration into daily clinical practice; however, preventative initiatives in

the acute care setting are often challenged by implementation challenges.^{10,13-15}

As public health interventions prove their efficacy and effectiveness, they have become ingrained into the mission and daily work of many emergency departments across the United States. Specifically, the Centers for Disease Control and Prevention (CDC) recommends universal ED-based HIV testing in areas where the HIV prevalence is greater than 0.1%.¹⁶ ED-based HIV testing has been demonstrated to be high yield, acceptable, and feasible in varied geographic sites and community settings across the United States,^{12,17-23} yet a critical next step in realizing true implementation of this recommendation is to optimize strategies for full integration into clinical practice.

Despite the widespread recognition regarding the importance of ED-based HIV testing as necessary to combat the HIV epidemic, a 2009 survey of US hospitals found that only 22% of emergency departments provided routine HIV testing, and—of those—less than a third followed the recommended “opt-out” format.^{24,25} Health care providers have cited varied obstacles to integration into practice including inadequate resources, time constraints, concerns regarding linkage to care, privacy and confidentiality, fear of patients surging the emergency department solely for HIV testing, burdensome consent processes, competing priorities, lack of staff buy-in, and inadequate

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reimbursement to implement HIV testing effectively in the emergency department.^{17,21,26–28}

We sought to evaluate the impact of a focused emergency nurse partnership with a long-standing HIV testing program, which had historically been physician led, by analyzing a successive series of nurse-driven strategies focused on optimizing rates of HIV testing. Strategies included addition of a dedicated clinical nurse champion who helped navigate provision of testing including extension to overnight shifts, optimization of the electronic health record (EHR) at triage, and expanded patient inclusion criteria for testing.

Methodology

STUDY DESIGN AND SETTING

This was a retrospective postimplementation evaluation of varied nursing-led ED-based HIV testing optimization strategies conducted at 1 emergency department in the United States that serves approximately 70,000 patients per year.

BACKGROUND: ED-BASED HIV TESTING PROGRAM

The HIV testing program originated as a clinical demonstration project in 2005 and transitioned to a nurse-driven integrated clinical program in 2013. HIV testing was advanced initially via a series of focused intensive pilot research studies beginning in the 2000s,²⁹ and transitioned to a clinical "parallel staff" (ie, run by dedicated HIV testing facilitators) with support from Maryland Department of Health and Mental Hygiene and, subsequently, Baltimore City, to a clinical testing program beginning in 2005. Over the next decade, with advances in testing methods (ie, blood-based fourth-generation testing technology), Maryland state approval for "opt-out" consent and improvement in the EHR system, the emergency department transitioned to a hybrid-testing program with clinical nurses performing brief (less than 20-second) HIV screening in triage and ancillary HIV testing staff performing and obtaining results of oral tests. The ED triage nursing coordinators educated nursing staff on testing updates as needed. HIV testing staff was available 8:00 AM to 11:00 PM daily to perform oral HIV testing (for those patients who do not have blood drawn for routine laboratory tests), and fourth-generation blood testing was available 24 hours a day, 7 days a week for those who were having blood drawn for clinical purposes. From 2005 to 2013, the program was directed by a physician champion

with assistance from ED nursing on an intermittent, but not dedicated, basis.

Administrative and infrastructure support for HIV testing and program implementation was provided by Baltimore City Health Department and as well as Gilead Sciences Inc. HIV FOCUS Program. The Gilead Foundation funded all HIV testing until January 2016, when the department began billing blood-based HIV testing to insurance as a part of the standard of care. Dedicated HIV testing staff link newly diagnosed patients to care as well as provide linkage to those living with HIV who are not currently in treatment. The program has a strong relationship with the on-site infectious disease clinic but ultimately link patients based on insurance and patient preference.

STUDY PERIOD: NURSE-LED HIV TESTING OPTIMIZATION INTERVENTION

In 2013, the Johns Hopkins Emergency Department testing program set out specific target testing goals, which included provision of 1,150 tests per month. In 2014, a dedicated nurse champion joined the team, and between July 1, 2014 and September 20, 2016, the testing program evolved with the addition of a series of focused implementation optimization interventions. [Table 1](#) provides an overview of the 4 distinct phases of the HIV testing program.

The addition of a dedicated clinical nurse champion involved contracting a clinical emergency nurse (MW) to work with the HIV testing team 4 hours per week. An overview of the job description is given in [Figure 1](#).

The addition of overnight testing created a workflow from 11:00 PM to 8:00 AM (outside the hours of ancillary staff) to offer 24-hours a day testing to all patients. Finally, an electronic medical record (EMR)-optimization strategy was developed to prompt the offer of testing during the triage process. Patient eligibility criteria were also expanded to include patients older than age 65 and all Emergency Severity Index (ESI) categories if the patient is able to provide informed consent.

OUTCOMES AND DATA ANALYSIS

The primary outcome was the number of tests performed per day in the Johns Hopkins Emergency Department within the HIV testing program. Data were analyzed using an interrupted time series autoregressive integrated moving average (ARIMA) model and considered 3 factors including (1) long-term trends and cycles and short-term fluctuations, (2) autoregression, and (3) day of the week. Initial data analysis indicated the data set had an autoregressive

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