Quality improvement for HIV screening in a primary care resident clinic

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1. Introduction

HIV/AIDS continues to be a major public health concern. Despite widespread public awareness of this disease and the dissemination of educational information concerning reduction of risk of transmission by various governmental and private health organizations through mass media, HIV has had an unlikely resurgence in the past decade among certain demographics [1]. The prevalence of HIV in the United States is 1.2 million, with one-eighth of these individuals unaware of their diagnosis, with incidence of HIV remaining steady at 50 000 individuals per year. The most disproportionately affected in the population include men who have sex with men (MSM) and injection drug users, with a 12% increase in incidence in MSM subgroup from 2008 to 2012 alone [2]. Already preexisting health disparities and the unfortunate stigma surrounding a new HIV diagnosis can serve as barriers to identifying those at risk of acquiring HIV. According to CDC estimates, there are approximately 168 000 individuals with HIV who are unaware of their status, with approximately one-third contributing to further transmission [2]. Many of these individuals may visit a healthcare setting multiple times before their diagnosis. This places much importance on the physician and other health care partners in assessing individuals for risk and testing them consequently for the purposes of diagnosis, and then future management, treatment, and prevention of further HIV spread. In 2006, the CDC recommended patients in all healthcare settings be screened for HIV and in 2013 the United States Preventive Task Force (USPSTF) released a new Grade A recommendation supporting HIV screening for all adolescents and adults aged 15–65 years, and among other groups, highlighting the importance of large-scale screening for HIV [3].

The setting of this HIV screening study was in a resident-run internal medicine clinic in located in urban Nashville which serves mainly indigent patients with significant health care needs. Davidson County, in which Nashville is seated, accounts for 22% of all new HIV diagnoses in the state of Tennessee [4]. In an attempt to implement CDC recommendations in our practice, and as part of a quality improvement project, HIV screening was selected. Prior to this study, very few resident providers questioned and documented sexual preference, risky sexual behaviors, history injection drug use or illicit drug use. Only 4% of clinic patient had been screened for HIV before initiation of the study.

2. Methods

At the beginning of the study, the resident class reviewed the Performance Improvement Module from the American Board of Internal Medicine (ABIM) as part of a Continuous Quality Improvement (CQI) meeting. A chart review was conducted of electronic medical records of fifty patients who had been consecutively seen in the month of August 2014 at the time of the appointment to collect baseline data. Emphasis was placed on previous HIV screening, if any, and screening for other sexually transmitted illnesses, record of high-risk behavior, previous or current illicit drug use, and sexual orientation. In September 2014, the residents were presented with the data obtained from this chart review during their CQI meeting and selected HIV screening per CDC recommendations as their area of improvement.
We demonstrated where the data regarding sexual history is to be placed in our electronic medical record (EMR) system.

The study took place from 1 October 2014 to 28 February 2015 with participation from 18 residents. Before seeing every clinic patient, residents were prompted by their faculty preceptor to screen for HIV in the appropriate population. There are five clinic preceptors in this clinic and a typed reminder sat on each desk for the preceptor. We did not measure the percentage of reminders that actually occurred, but believe the reminders were consistently carried out for that time period. We have three faculty that are infectious disease (ID) specialists, and that probably did help this performance.

Retrospective chart review of the patients seen by residents between October and February was then conducted and individual and collective data on HIV screening was collected and given to each resident. The other data at that time was not shared with the residents individually, but only globally at our monthly continuous quality improvement (CQI) conference.

Between March and May 2015, residents were not prompted by faculty preceptors on HIV screening prior to seeing their patients to assess whether residents would continue to screen without an impetus. Another retrospective chart review was conducted at this time to examine whether the implementation of the HIV screening project was an enduring change in the practice. Residents were again given individual and collective data concerning their performance on HIV screening.

3. Results
Seventeen residents saw 247 patients from October 2014 to May 2015. From October 2014 to March 2015, 50% of individuals seen were screened for HIV, and after the elimination of prompting, this rose to 76%. We also gathered the data on other STI screening, sexual orientation history, high risk sexual behavior, and illicit drug use. Minimal to no improvement, or decline was seen in some of those measures, despite marked improvement in HIV screening (Table 1, Graph 1).

4. Discussion
This project was conducted within a moderately sized clinic and of 247 unique individuals seen and 123 tested, two patients were newly diagnosed with HIV with one positive test per 67 individuals. In the city of Nashville, according to Nashville/Davidson Metro Public Health Department data, for the month of September 2014, there were 1993 individuals who were tested with 10 new diagnoses and a ratio of approximately one positive test to 200 individuals tested [4]. The fact that we obtained two positive results was a strong motivator for our residents. Our clinic population may have more at risk individuals than the general population. The morbidity and mortality associated with HIV are high and there is an onus on healthcare providers to test for HIV in all appropriate individuals and to provide counseling on methods to prevent transmission. I think the residents share this sentiment now.

Healthcare costs of HIV treatment are significant. In 2009, according to CDC data, 45,202 individuals tested positive for HIV in the United States and U.S. territories with a total estimated lifetime treatment of 16.6 billion dollars [4]. Over the cost of an individual’s lifetime, this is $379,688 [5]. Economically, HIV prevention counseling and frequent testing in high-risk HIV patients is a

| Table 1. Summary Data |
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| **September 2014**   | **October 2014 to February 2015** | **March 2015** |
| HIV screening        | 4%                                 | 49.80%         | 79.60%         |
| Other STI screening history | 2%                                 | 2%             | <1%            |
| Sexual orientation history | 16%                                | 18%            | 14%            |
| High-risk sexual behavior history | 0%                                 | 9%             | 60%            |
| Illicit drug use history | 14%                                | 3%             | 35%            |
more prudent direction to take. We did not seem to do as well at identifying high risk patients overall. This is an area that needs improvement so that we can prevent HIV acquisition and transmission, and have significant public health impact.

Physicians may be uncomfortable with or unable to obtain a sexual history from their patients for a myriad of reasons; the majority of physicians obtain a sexual history once the patient has presented with an STI [5]. We were disappointed that other aspects of the sexual history, which might lead to important behavioral counseling, did not improve. We surmise that this is related to the inherent challenge in obtaining a sexual history. We are aware that many residents would ask about doing the HIV screening, and if the patient agreed, they would not pursue aspects of the sexual history. This might reflect the ease of obtaining an objective measure (lab test) in comparison to some of the more personal data regarding sexual orientation and high risk behavior. Although some improvement was noted in high risk sexual behavior assessment, other STI and sexual orientation declined. We will need other methods to enhance this so that the sexual history becomes as engrained in an encounter as is asking about alcohol and tobacco. Physicians must be proactive in obtaining a sexual history as this is part of complete history taking, and is the first step in assessing for HIV and other STI risks. That certainly is an area that needs quality improvement for us going forward, so that we can provide the necessary behavioral counseling.

Disclosure statement

No potential conflict of interest was reported by the authors.

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