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Comparative Cost Study of Clinical HIV Testing Prompts at the Veterans Affairs Healthcare System

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Abstract

To calculate the costs and health effects of a novel HIV testing approach that makes use of routine-based clinician reminders.

Methods: The standard pretest/posttest counselling, counselling and a new clinical reminders system, and the sole clinical reminder in the veterans' health care system were all the subject of our economic research. The cost-effectiveness of three HIV testing strategies over a one-year budget was determined using a payer-perspective decision model. Values for the parameters, such as the likelihood that patients will accept the test and the price of the HIV testing procedures, were taken from the literature.

From August 2004 through December 2011, anonymous patient information was gathered from one clinic in Los Angeles, California, including the total population screened and the number of new HIV diagnoses. Expenditures per new case as well as the year total costs were calculated a foundation for parameter values and patient information. Sensitivity analysis was carried out to determine the critical variable's cost-related robustness.

Results: Compared to $109,208 for conventional HIV testing, the total cost of the clinical reminder system with pretest counselling was $81,726 over a year. The number of HIV tests conducted and the number of new diagnoses rose for that year under a clinical reminder system without pretest counselling. Additionally, the lowest cost per new diagnosis was seen.

Conclusions: When compared to standard HIV testing, the clinical reminder system can lower the cost per case found and improve the efficacy of HIV testing. When implementing a similar programme at a facility outside of Veteran Affairs, the foundational decision model might be employed.

Keywords: AIDS; Cost analysis; Veterans Affairs Healthcare System

Introduction

Early HIV infection detection lowers the risk of disease transmission and benefits those who are affected clinically. According to estimates from the Centers for Disease Control and Prevention, 19% of Americans are not aware of their HIV status [1]. The American College of Physicians, the US Preventive Services Task Force, and the Centers for Disease Control and Prevention have all recommended routine, voluntary HIV testing for adults as a result of this gap. The Veteran Health Administration (VHA), the largest healthcare institution in the country, has established a number of measures to encourage HIV testing in order to increase early detection. Over time, in reaction to modifications in the regulatory environment (such as the elimination of the need for written informed consent) [2], Various initiatives have been implemented in VHA to increase HIV testing rates, including changes to guidelines for who should be offered HIV testing (i.e., moving from risk-based to routine testing). Although our earlier analysis showed that these programmes were effective, the total expenses of these programmes and the cost per detected case are not fully stated [3]. This study analysed the costs of three alternative HIV testing plans: 1) physician-based traditional HIV testing and counselling without clinical reminders; 2) nurse-based streamlined counselling with clinical reminders and telephone notifications for negative results; and 3) clinical reminders without pretest counselling and with telephone notifications for negative results [4]. We have assessed the cost per test and the cost for discovering a previously undetected case of HIV infection in order to support programmes that may be interested in implementing a similar method but are unsure of the financial implications.

We did not include the long-term cost-effectiveness of HIV testing because this article concentrated on examining the immediate economic implications of these new tactics. These evaluations will take the consequences of beyond the purview of this study; diagnosis and therapy on quality-adjusted life-year are not included [5].

Methods

Nurse-initiated, simplified counselling was found to be cost-effective in raising HIV testing rates in primary care settings when written informed permission was required for HIV testing used this tactic as a component of a multimodal intervention that also included provider education, an audit-feedback tool, and a real-time clinical reminder to remind physicians to conduct risk-based HIV testing at Southern California VHA medical care facilities [6]. Any past records of hepatitis B or C infection, use of illegal drugs, a sexually transmitted disease, homelessness, or specific behavioural risk factors were enough to set off the clinical reminder. This program's implementation tripled the screening rate and increased the number of HIV diagnoses. The VHA's policy for HIV testing changed in August. The updated policy does away with the need for official pre- and post-test counselling.

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In the meanwhile, verbal consent for testing was used instead of written authorization, and testing was advised for everyone, regardless of known risk of HIV infection [7]. Following this modification, numerous Veterans Affairs (VA) facilities updated their procedures to comply with the new VA standards and put in place a non-risk-based clinical reminder to encourage HIV testing. HIV testing rates have been proven to increase with both the initial risk-based interventions and the ensuing change to offer HIV testing to all patients who had not previously received it [8].

Hypothesis and Study Design

The purpose of this study was to test the proposition that a non-risk-based clinical reminder system for encouraging HIV testing is more economical than conventional risk-based counselling. By comparing the costs of three alternative HIV testing procedures in the study, this hypothesis.

- Risk-based testing that relies on the doctor identifying patients at risk and taking charge of ordering the test, as well as demands for written informed consent and in-person pre- and post-test counselling

- Risk-based testing with a focus on clinical reminders to identify at-risk patients, physician responsibility for ordering tests, nurse-based, efficient in-person pretest counseling, requirements for written informed consent, and telephone notifications for negative results

- Routine HIV testing with reliance on clinical reminders to identify previously untested patients, elimination of pretest counseling, substitution of verbal for written informed consent, physician's responsibility for test ordering, and telephone notification for negative results [9].

The analysis took into account the labour expenses and screening costs associated with conducting HIV tests but left out the costs associated with providing care for those who tested positive for HIV. The process for each method is depicted in a flowchart, with the key distinctions between them circled. We tallied expenses and advantages from the viewpoint of a VHA medical facility. By selecting pertinent cost elements from the literature, we first determined the expenditures per patient related to the procedure for each technique. Then, utilising these various cost components and probability of test acceptance and notification rates for each technique, we constructed a decision tree model on Tree Age Pro 2011 [10]. Gives the maximum and minimum values for each variable that was used. Using the software on a computer We ran a sensitivity study on the costs and probabilities in the decision tree analysis model, Triage, to take into consideration assumptions and examine their impact on the model's conclusions. Last but not least, we calculated the overall expenses of each technique over a year, which depended on how many people were tested and how many of those who underwent testing were found to be HIV-positive or not. The one-time installation expense for the clinical reminders and the cost of the quarterly feedback reports were part of strategies B and C. Our study had a one-year time frame, and the prices were converted to 2011 dollars.

Results

The results are all from the same site (strategy A), which was previously discussed. The number of individuals tested, the number of cases discovered for that year, and the number of asymptomatic patients discovered increased once the clinical reminder system was put into place and the counselling process was streamlined. 1906 people were tested as part of approach A, and 12 new cases of HIV infection were found. When the clinical reminder system and counselling were utilised in conjunction with approach B, 3858 patients were evaluated, and of those, 19 additional instances were found. Finally, 16,172 tests were run, leading to 17 new diagnoses, without the use of pretesting counselling and with only the clinical reminder. All findings are from various 12-month time periods [11].

Patients visiting the hospital were eight times more likely to undergo an HIV test in the presence of clinical reminders for routine testing and no pretest counselling (strategy C) compared to the time when testing was only advised for patients at known risk of infection, pretest counselling was not required, and providers were not prompted by the clinical reminder to offer HIV testing (strategy A). Along with better HIV testing, it's critical to spot HIV-positive patients as soon as possible, before the virus weakens their immune systems.

Pre- and post-test counselling and clinical reminders were used to identify patients (strategy B), and nearly half of those patients had CD4 counts more than 200 cells/ml without a clinical reminder, a third of the patients were primarily identified through pretest/posttest counseling.

Discussion

We performed the comparative cost analysis of three HIV testing strategies; two strategies included the first-year implementation costs of clinical reminders, an electronic reminder that helps facilitate the HIV testing process during a patient's visit. We measured short-term costs of these strategies for the first year of implementation of clinical reminders. The implementation of the clinical reminders is a one-time cost that would not be added in additional years of using this strategy. Main health outcomes measured in our model were total annual cost, cost/case identified, and incremental cost per case or cost per test.

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