Supporting the Integration of HIV Testing Into Primary Care Settings

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Objectives. We examined the efforts of the US network of AIDS Education and Training Centers (AETCs) to increase HIV testing capacity across a variety of clinical settings.

Methods. We used quantitative process data from 8 regional AETCs for July 1, 2008, to June 30, 2009, and qualitative program descriptions to demonstrate how AETC education helped providers integrate HIV testing into routine clinical care with the goals of early diagnosis and treatment.

Results. Compared with other AETC training, HIV testing training was longer and used a broader variety of strategies to educate more providers per training. During education, providers were able to understand their primary care responsibility to address public health concerns through HIV testing.

Conclusions. AETC efforts illustrate how integration of the principles of primary care and public health can be promoted through professional training. (*Am J Public Health.* 2012;102:e25–e32. doi:10.2105/AJPH.2012.300767)

In 2006, the Centers for Disease Control and Prevention (CDC) published revised recommendations for HIV testing that encouraged routine, voluntary, and opt-out testing for all individuals aged 13 to 64 years regardless of perceived HIV risk.[1,2] Supporting the recommendations were estimates that 21% of HIV-infected people in the country are unaware of being infected,[3] the need for infected people to receive care as early as possible,[4,5] and the sexual transmission prevention benefits of timely HIV diagnosis.[6] HIV testing benefits the individual patient by providing an opportunity to enter care, receive antiretroviral therapy, and reach therapeutic goals of an undetectable viral load and functional CD4+ T cell count levels. HIV testing also benefits public health because individuals who know they are infected are less likely to engage in transmission risk behaviors and are more likely to achieve lower viral load levels, decreasing transmission potentials and leading to fewer new infections.[7]

Despite the release of the 2006 testing recommendations, however, the CDC has reported that an estimated 55% of adults in the United States have never been tested and that 32% of HIV diagnoses still occur late in the disease process, when treatment is more complicated, less effective, and more expensive.[8] Expanding testing to primary care settings, where a greater proportion of the population is likely to be seen, allows these sites to better support the public health response to HIV. The major primary care contributions to this effort should include earlier HIV diagnosis, improved linkage to care, and reduced transmission of HIV infection.

We have presented the first, to our knowledge, overview of the HIV testing education, training, and technical assistance that the federally funded AIDS Education and Training Centers (AETCs) program provided between September 1, 2008, and August 31, 2009—a period during which the CDC offered supplemental funding to accelerate the integration of the public health practice of HIV testing into primary care settings in light of the 2006 guidelines. We have presented data on the characteristics of training and technical assistance focused on integrating HIV testing into primary care settings relative to AETC efforts not focused on testing. We also used case studies from AETC regions to illustrate organizational- and system-level changes that support the ability of individual clinicians to provide HIV testing in primary care clinics, labor and delivery departments, and emergency departments.

The importance of primary care and the need for it to be fully integrated into community and public health systems were codified at the International Conference on Primary Health Care at Alma-Ata in the former Soviet Union in 1978. The conference, sponsored by the World Health Organization, resulted in the "Alma-Ata Declaration," a landmark document that explored health care disparities, the need for universal health care, and the critical role of primary care in the process.[9] More than 30 years after the release of the declaration, nations, communities, and individual health care providers are still struggling to develop integrated systems to achieve the goal of health for all. In the United States, the complex nature of care systems and lack of capacity to rapidly recognize community health risks, incorporate proactive responses, and establish the fiscal infrastructure to support a response have hampered progress toward this goal.[10]

Grumbach and Mold[11] have suggested that an approach to help integrate the very different primary and community care systems in the United States would be to develop a health care cooperative extension service derived from the agricultural model that transformed American farming in the last century. They advocated extension agents, linked to academic centers, that would disseminate information about evidence-based practices, develop collaborations, and enhance the speed at which health care innovations would be adopted in rural and hard-to-reach areas. Fortunately, numerous programs designed to do just this are already in existence, including the AETC program, which is part of the federal Ryan White HIV/AIDS Treatment Extension Act,[12] a unique program that improves the availability of care for low-income, uninsured, and underinsured people with HIV infection and their families by

supporting a comprehensive set of services from HIV primary care to professional education and workforce development support.

The AETCs were established in 1987 when the Health Resources and Services Administration funded 5 regional centers to provide education about HIV infection to health care providers. In 1988, additional regional centers were added to the program to cover all 50 states, the District of Columbia, the US Virgin Islands, Puerto Rico, and the Pacific Jurisdictions.[13] By 2011, the program had expanded to 11 regional AETCs, which are housed in academic health institutions and supported by 5 national AETCs and 1 international center. The regional AETCs coordinate education and consultation services through more than 130 local performance sites that provide community-based needs assessments and timely delivery of cutting-edge training and technical assistance to health professionals.

The AETC mission is to increase the number of health care professionals in the US workforce who are qualified and willing to offer effective HIV prevention and treatment services to individuals and communities. Between July 2008 and June 2009, the AETCs and their local performance sites presented more than 50 000 hours of education, consultation, and technical assistance to more than 71 000 health care providers in disparate geographic areas of the country.[13] For more than 25 years, the AETCs have supported efforts to contain the HIV epidemic in the United States by focusing on training initiatives in the areas of HIV prevention, diagnosis and testing, clinical management and treatment, mental health care, substance abuse treatment, and case management, with an emphasis on reducing health care disparities,[14] all of which support the National HIV/AIDS Strategy[15] and contribute to cost savings and improved care values as outlined by the Affordable Care Act.[16]

The AETCs have been delivering training about HIV testing since 1987, but the 2006 testing recommendations created a stimulus to more intensively focus on testing and to expand AETC efforts into clinical settings that did not specialize in HIV care, such as community health centers. Since the CDC released the 2006 HIV guidelines, the AETCs have worked to increase awareness of the new recommendations and improve capacity among health professionals working in primary care settings to conduct routine HIV screening. In fact, in 2008, the CDC provided supplemental funding to the AETC program to enhance delivery of intensive, clinic-based education, training, and technical assistance activities to support the integration of HIV testing into primary care settings. AETC efforts have, for example, helped clinics develop policies and procedures for HIV testing, worked with clinics to develop tailored models for routine HIV testing, established quality assurance programs for rapid test interpretation, and taught clinicians to deliver prevention counseling for individuals found to have HIV infection.[17]

METHODS

To illustrate AETC HIV testing capacity-building efforts, we used both quantitative and qualitative data to describe the scope and results of AETC efforts to integrate HIV testing into primary care. AETCs collect standardized process data on training events and training participants during registration or at the time of training. We consider all training activities, including technical assistance to individuals or groups, to be training events for the purposes of the AETC process data collection. Eight regional AETCs were able to provide data for the AETC funding cycle fiscal year from July 1, 2008, to June 30, 2009. Table 1 provides a description of the geographic regions that these regional centers cover. We used process data from these regions to describe characteristics of the training programs, which included HIV testing as a topic compared with those that did not and characteristics of the participants in the trainings that included or did not include HIV testing as a topic. We did not include some CDC-funded HIV testing training in these data because they occurred during the period covered by the subsequent fiscal year; the data we have presented provide a comparison of trainings during 1 AETC fiscal year.

We then used a retrospective case study approach to compare the delivery of education, training, and technical assistance across clinical settings in the 8 participating regions. We asked each region to submit a "key" case description[18] and to describe the process of designing and implementing a testing program in a medical setting representing a best result in terms of training and technical assistance outcomes.

For the quantitative analysis of the training process data, data elements the trainers submitted for each training event included training topics, number of participants, training event type (e.g., didactic, skills-building sessions, technical assistance), and delivery method (e.g., in person lecture, teleconference; Table 2 provides a complete list). Self-reported participant characteristics included demographic and employment setting information. We compared the time spent, types, and modalities of training, and technical assistance activities that did and did not include HIV testing as a topic. We also analyzed differences across 5 broad topic categories included on the data collection form to measure and compare the scope of trainings. The 5 topic categories were clinical management of HIV, health care organization and delivery issues, prevention and behavior change, psychosocial issues including mental health and substance abuse, and targeted populations such as racial/ethnic minorities and rural populations. We used the t test and the χ^2 test to evaluate the statistical significance of differences in continuous and categorical data elements (at $P < .05$).

For the qualitative analysis, we reviewed and compared cases from participating regional AETCs to understand similarities and differences. We reviewed candidate cases and scored them using standardized criteria for specific themes deemed a priori to be important contributors to results at a clinic level. Table 1 presents the cases that we agreed were the most representative of "best" cases in summary form. We also selected 1 case to illustrate in detail the importance of each contributing factor.

RESULTS

Table 2 summarizes the characteristics of training events that included HIV testing and those that did not during the study period. AETCs in the 8 regions included in this study delivered 2709 HIV testing events for a total of 15 171 hours of training that reached 38 321 participants. On average, compared with training not covering HIV testing, training events covering HIV testing were longer

TABLE 1—Overview of Education, Training, and Technical Assistance Efforts of 8 US AIDS Education and Training Centers (AETCs): July 1, 2008–June 30, 2009

AETC Region	Targeted Primary Care Audience	Education Setting	Educational Objectives	Training and TA Activities	Outcomes
Delta AETC serving Arkansas, Louisiana, and Mississippi	Family practice and pediatric physicians and nurses	School-based clinics	Increase routine offering testing to adolescents seeking health care at high school–based clinics	Training on HIV testing options, CDC recommendations for HIV screening, and counseling regarding positive tests with emphasis given to the need for testing adolescents	Testing adolescents increased in the New Orleans area with better identification of infected adolescents at earlier stages
Florida and Caribbean AETC serving Florida, Puerto Rico, and the US Virgin Islands	Primary care physicians, nurse practitioners, dentists, medical assistants, lab technicians, patient educators, dental assistants	Medical clinic	Prepare learners to offer rapid HIV testing, provide resources for providers to connect patients to HIV care	Conducting rapid HIV test, case conferences with providers, distribution of resource packets and test kits	66% reported increased capacity to treat patients with HIV
Mountain Plains AETC serving Colorado, Kansas, Nebraska, New Mexico, North Dakota, South Dakota, Utah, and Wyoming	IHS physicians, nurses, case managers, and other Native-serving clinicians	IHS clinics	Increase HIV testing on Native American tribal lands	Considerable preplanning with community IHS providers to gain entrance into local health care centers, on-site training and demonstration of rapid testing, giving HIV test feedback, and HIV risk assessment, site-specific TA on obtaining test kits and implementing rapid testing, posters and patient education materials, off-site training on culturally appropriate HIV care for Native patients	Increased number of tests performed at 4 Native-serving clinic sites
New York and New Jersey AETC serving New Jersey and New York	Primary care providers, pharmacists, clinic administrative, and support staff	Federally qualified health center	Prepare learners to offer HIV tests, identify acute HIV infection, manage HIV disease; prepare pharmacist to provide counseling on medication side effects and adherence	Systems mentoring: TA for administrative and clinical staff; clinical mentoring: basic HIV training and weekly case-based discussions	Clinic went from seeing no known HIV-infected patients to a caseload of 35 patients with HIV (not previously in care) within 1 y; ongoing clinical mentoring is being provided; clinic is now in process of developing and implementing routine testing for all patients

Continued

TABLE 1—*Continued*

Northwest AETC serving Alaska, Idaho, Montana, Oregon, and Washington	Physicians, pharmacists, nurses, and other providers	Family medicine and prenatal clinics, community health centers, IHS and tribal health clinics, Veterans Affairs health care facilities, county health departments and jurisdictions, community-based organizations	Increase HIV testing in general in the region and especially among American Indian and Alaska Native, African American, and Latino populations; ensure HIV testing of pregnant women	Training topics included fundamentals of HIV rapid testing, encouraging testing and treatment of African Americans, implementing HIV testing in a clinical setting, risk reduction counseling; TA provided to establish mobile clinic services to include HIV testing; postcards promoting universal HIV testing sent to 22 647 health care providers in Washington State	Productive and ongoing collaborations with state and local health departments and community clinics; increased interest and knowledge sharing among more than 200 training and TA recipients, their patients, families, and communities on the importance of HIV testing; fostered training with new groups of providers, previously unreached by the Northwest AETC; increased awareness that HIV testing is important in early diagnosis and treatment and achieving better health outcomes; increase in HIV testing; 1 tribal clinic reported 40%–50% of patients now being tested for HIV; 1 community health center implemented HIV testing, developed and distributed patient materials, and finalized a plan for patient referrals; 7 other trainee sites reported intent to implement HIV testing; at the time of training, < 5% indicated they had offered opt-out HIV testing to patients aged 13–64 y within the preceding month; after training, 18% planned to implement routine HIV testing, another 12% planned to increase recommendations for or provision of routine HIV testing
Pacific AETC serving Arizona, California, Hawaii, Nevada, and the US Pacific Jurisdictions	ED physicians, residents, nurses	County ED	Develop protocols and implement HIV testing and linkage to care	Train key personnel and ED physicians to educate colleagues; TA included establishing an algorithm for sharing data for quality assurance across public health, laboratory, HIV clinic, and ED; TA to create a patient flow algorithm; TA to develop same-day linkage to and engagement in care plans for patients with HIV	332 clinicians trained, including 50 ED attending physicians, 68 ED residents, 200 registered nurses, 14 licensed vocational nurses; average testing opt-in rate of 84%, in 2011; 2030 patients have been tested with 13 new HIV diagnoses; 35% of 70 self-identified HIV-infected patients found to be out of care

Continued

TABLE 1—*Continued*

Pennsylvania and Mid-Atlantic AETC serving Delaware, the District of Columbia, Maryland, Ohio, Pennsylvania, Virginia, and West Virginia	Physicians, nurses, pharmacists, service providers, key staff	L and D departments in 3 hospitals	Ensure HIV testing of pregnant women	Trainings included a review of local law, CDC protocol for L and D rapid testing, perinatal prevention guidelines, confidentiality, the role of the laboratory, the role of the pharmacy, discharge packets for women	No HIV-infected babies born to HIV-infected mothers in 2009
Southeast AETC serving Alabama, Georgia, Kentucky, North Carolina, South Carolina, and Tennessee	ED staff	ED	Establish HIV testing programs	Skills-building trainings to develop rapid testing protocol, pre- and posttest counseling	Tested more than 14 000 patients and identified 170 infected patients (1.7% prevalence); training reached 60 learners and provided more than 52 h of training

Note. CDC = Centers for Disease Control and Prevention; ED = emergency department; IHS = Indian Health Service; L and D = labor and delivery department; TA = technical assistance.

(5.6 vs 2.0 hours; $P<.001$) and included more participants (14 vs 6; $P<.001$). Training events that included HIV testing content were more likely to include skills building, clinical training, and technical assistance than were trainings not covering HIV testing ($P<.001$). Compared with other trainings, testing trainings were characterized by higher "doses" of hands-on and interactive styles of content delivery using a mixture of workshops, role-play, and patient simulation (all $P<.01$).

During the study period, the 8 regional AETCs provided trainings on more than 40 topic areas; HIV testing trainings, notably, accounted for 20% of all these events (Table 2). On average, HIV testing trainings incorporated twice as many topics (10) as did nontesting trainings. Compared with nontesting trainings, HIV testing trainings were concentrated more often on health care delivery (67% vs 31%), prevention and behavior change (100% vs 21%), psychosocial issues (42% vs 23%), and targeted populations (36% vs 11%; all $P<.01$). In summary, testing trainings were more diverse in terms of the level of training and concentrated more on service coordination, mental health, substance abuse, risk reduction, and hard-to-reach populations.

Information was available on participants (n = 11 921) for 86% of trainings. Most of the events without participant information (72.6%) had only 1 participant, and we categorized these as individual clinical consultation or technical assistance. Table 3 shows demographic and workplace setting information for participants in HIV testing trainings and non-HIV testing trainings. Participants in HIV testing trainings were less likely to be clinical providers and slightly more likely to work in nonclinical or corrections settings (both $P<.001$).

Qualitative Analysis

Across regions, staff in clinics participating in education, training, and technical assistance recognized a variety of benefits from the testing trainings (Table 1). Participants said their patients appreciated the service (offering and providing tests for HIV infection) as gestures of care and concern. Providers said that they appreciated the opportunity to identify HIV infections that would not have been identified otherwise. Clinic administrators appreciated learning about potential sources of free HIV test kits that could increase the ability to participate in federal testing initiatives. After training, clinic leaders began to understand that HIV testing was within their mission and perhaps not much different from other testing services routinely provided by their institutions.

Challenges also affected the degree to or speed at which integration was achieved. Many clinics had difficulty paying for tests; this was the most common barrier clinic administrators noted. Other challenges included lack of space, which is often at a premium in clinic and emergency department settings, in which to conduct testing. Staff members were sometimes reluctant to test because of concern about the time it would take to care for or link newly diagnosed patients to care. Finally, some clinics did not perceive HIV testing to be an important clinical issue, regardless of cost. Decision makers in these settings did not see HIV testing as part of the clinic mission, either because the setting focused on acute care, in the case of an emergency department, or because health care professionals did not perceive HIV testing to be within the purview of primary care.

Our qualitative case study analysis revealed that the regions had used numerous effective strategies. Table 1 provides examples of HIV training activities across regions. Common strategies used by the AETCs addressed 2 key issues: intensive long-term trainings focused on developing organization-level systems to help health professionals deliver testing, and technical assistance concentrated on establishing or revising policies and procedures for testing and linkage to care for newly diagnosed patients. All regions spent time and effort helping clinics find or maintain financing for tests, primarily because the lack of access to test kits has been a consistent barrier to integration in all primary care settings. Training centers also helped medical, nursing, laboratory, and other personnel recognize the need for HIV testing and offered technical assistance to operationalize implementation. The AETCs included information on the benefits of testing for the patient as well as for public health. Finally, health care providers needed information to ensure that once HIV-infected patients were identified,

TABLE 2—Training Characteristics of 8 US AIDS Education and Training Centers: July 1, 2008–June 30, 2009

Characteristic	HIV Testing Trainings, No. (%) or Mean ±SD	Non-HIV Testing Trainings, No. (%) or Mean ±SD	*P*
Trainings	2709 (20)	11 152 (80)	
Participants	38 321 (36)	67 857 (64)	
Participants per training	14.1 ±26.7	6.1 ±18.3	< .001
Training hours	15 171 (40)	22 769 (60)	
Hours per training event	5.6 ±13.6	2.0 ±5.6	< .001
Hours by method of training[a]			
Didactic presentation	662 (24.4)	1155 (10.4)	≤ .001
Skills building	1008 (37.2)	1246 (11.17)	≤ .001
Clinical training	354 (13.1)	800 (7.2)	≤ .001
Group clinical consultation	97 (3.6)	838 (7.5)	≤ .001
Individual clinical consultation	302 (11.1)	5846 (52.4)	≤ .001
Technical assistance	634 (23.4)	1680 (15.1)	≤ .001
Topics included in training[a]			
Clinical management	2385 (88)	9710 (87)	.17
Health care organization or delivery	1826 (67)	3409 (31)	≤ .001
Prevention or behavior change[b]	2709 (100)	2289 (21)	≤ .001
Psychosocial issues	1131 (42)	2533 (23)	≤ .001
Targeted populations	978 (36)	1250 (11)	≤ .001
Number of topics covered mean	10.2 (6.5)	4.9 (4.4)	≤ .001
Hours of training by modality			
Chart or case review	687 (25.4)	3988 (35.8)	≤ .001
Clinical preceptorship	332 (12.3)	905 (8.1)	≤ .001
Computer based	268 (9.9)	973 (8.7)	.056
Telephone or teleconference	405 (15.0)	2447 (21.9)	≤ .001
Lecture or workshop	1617 (59.7)	2507 (22.5)	≤ .001
Role-play or simulation	313 (11.6)	326 (2.9)	≤ .001
Self-study	87 (3.2)	154 (1.4)	≤ .001
Telemedicine	20 (0.7)	563 (5.1)	≤ .001

[a]Trainings may include multiple levels and topics; categories are not mutually exclusive.
[b]We grouped HIV testing trainings under the prevention and behavior change category.

they would be rapidly linked into appropriate care settings. This entailed ensuring that clinics and emergency departments had strong referral networks in place, possessed the ability to offer a same-day appointment with an HIV specialist, or had the necessary expertise to manage (or comanage) newly diagnosed patients.

Case Study

The Florida/Caribbean AETC region worked with a community health center that provided health care, education, and outreach services for more than 6000 low-income individuals each year. Comprehensive services at the health center included dental, vision, and gynecological care; medical evaluations by primary care physicians and specialists; and laboratory and pharmacy services. AETC education, training, and technical assistance efforts targeted the entire clinic staff, consisting of primary care physicians, nurse practitioners, dentists, medical assistants, laboratory technicians, patient educators, and dental assistants, who were trained to test for HIV using rapid HIV test kits. The testing model developed for the center included offering free HIV tests to patients at triage.

The Florida/Caribbean AETC used a multimethod strategy to enhance project effectiveness. First, the center conducted a needs assessment of the clinic and used it to inform the planning and preparation process that took place in meetings with clinic leadership. The education plan was tailored to the clinic on the basis of the assessment, which had revealed needs to (1) better understand provider roles relative to testing and Florida laws covering consent to test, (2) learn how to talk to patients about the benefits of HIV testing and to counsel patients who refused testing, (3) provide Spanish language training, and (4) make continuing education credits available for the staff. Continuing education credits were particularly important when training took time away from clinical duties. Training was ultimately delivered to all staff over the course of several sessions. To support providers and establish clinic testing procedures, the region developed and distributed materials to all health center staff. Written materials included a pocket card (*Why Test?*) that guided providers through the testing process, including information on how testing could ultimately reduce subsequent transmission of HIV. Other materials included treatment guideline pocket reference cards, perinatal transmission prevention resources, and a rapid HIV testing protocol brochure. Because providers were often unsure what to do with a newly diagnosed patient, patient resource cards (*What's Next?*) were also developed and distributed. These cards contained information for local and national HIV hotlines and locations for case management, medical services, and partner prevention services, which helped link patients to medical care services. Finally, to boost patient interest in testing, AETC trainers helped the center develop a lawn sign ("FREE HIV Test Here Today"), which was posted outside the building during clinic hours. The sign served as a visual reminder to offer the test, introduced patients to the concept of testing, and encouraged patients to ask for information about the test.

This case illustrates the need to offer a wide range of activities to achieve a successful outcome. More than 91% of the participants in the Florida/Caribbean AETC trainings agreed that the information presented was "just right," and more than 70% said they would recommend the training to others. About half of the participants said their knowledge about HIV testing had increased and two thirds reported an increase in capability to treat HIV-infected patients. More importantly, however, 14% of

TABLE 3—Participant Characteristics of 8 US AIDS Education and Training Centers: July 1, 2008–June 30, 2009

Characteristic	Testing, No. (%)	Nontesting, No. (%)	*P*
Clinical provider	27 900 (66.9)	31 370 (74.7)	≤ .001
Practice setting			≤ .001
Primary or general care	19 237 (48.0)	20 941 (51.8)	
Specialty or hospital care	10 183 (25.4)	10 138 (25.1)	
Nonclinical or correctional facility	10 620 (26.5)	9328 (23.1)	

patients seen at the clinic had been tested in the month before training; 17% were tested in the month following training.

DISCUSSION

Recent developments in national health policy provide a renewed opportunity to link primary care and public health through the practice of HIV testing. The National HIV/AIDS Strategy, released in 2010, explicitly calls for the integration of HIV prevention practices such as testing into primary care settings and for optimizing treatment of HIV-infected patients by reducing disparities in access to high quality care.[7] AETCs' efforts to increase health providers' HIV testing knowledge and skills and to incorporate the public health practice of HIV testing into primary care provide an important example of how integration of prevention, HIV case finding, and linking patients to care can be accomplished.

Expanding access to HIV testing has the potential to greatly benefit both individual patients and the public health; however, as this article demonstrates, accomplishing integration takes considerable effort, requiring experienced educators to assess needs, deliver training, assist in the development of policies and procedures, and evaluate outcomes. AETC efforts illustrate promising practices for integration, notably targeted training and technical assistance on the basis of the unique organizational and clinical needs of specific primary care settings. Incorporating messages about the public health value of patient-level practice actually served to enhance the relevance of and need for trainings for care providers and clinic administrators.

With the release of recent studies demonstrating a strong association between antiretroviral treatment and reduced HIV transmission, the importance of HIV testing as prevention is clear.[7] However, the need to educate providers who do not view HIV testing as a natural fit either for them or their health care settings will continue to be an issue that must be addressed. Doing so would benefit not only HIV-infected patients who need treatment but also their communities by reducing the overall viral burden and, subsequently, the likelihood of HIV transmission to uninfected community members.[19]

AETC efforts illustrate a strategy for federal policies supporting integration of primary and public health programs. The base funding the AETC program provided was enhanced and extended with CDC supplemental funds. The Health Resources and Services Administration and CDC collaboration effectively expanded the AETCs' ability to deliver training and technical assistance to promote HIV testing. In turn, this enabled clinics, AETC regional grantees, and federal partners to increase their integration of primary care and public health, paving the way for future collaboration as outlined in the National HIV/AIDS Strategy.

The fact that not all AETC regions participated in this effort limits the results we have described. Three regions were not able to submit data for this analysis. We believe, however, that because the majority of regions with wide geographic reach are represented, we have accurately reflected how HIV testing education, training, and technical assistance helped providers understand and integrate an important public health practice into primary care, benefiting patients who may not have otherwise had access to HIV testing and care. The amount of time that elapsed between training and data collection, which was short, most likely influenced the magnitude of the change resulting from the efforts described. Further analysis is needed to determine if changes were sustained, increased, or waned over time.

Primary care is defined as "the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs"[20(p16)] and, although HIV testing has not always been defined as such, it easily fits into the philosophy of primary care because it benefits individual patient needs. Integrating HIV testing into primary care provides an ideal opportunity to deliver a service that is simultaneously beneficial to the public health, which is "an organized activity . . . to promote, protect, improve, and, when necessary, restore the health of individuals, specified groups, or the entire population."[20(p17)] An unintended but desirable consequence of AETC efforts to integrate testing into care has been the opportunity to help primary care providers gain new perspective about the role they can play in a public health response. AETC efforts illustrate how integration can be promoted during professional training and practice. ■

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Contributors

J. J. Myers and L. Bradley-Springer drafted the initial article. M.-S. Kang Dufour served as the quantitative analyst. K. A. Koester and S. Beane led the qualitative analysis and compiled the table of testing programs. J. Beal contributed the qualitative program description. All authors contributed to writing the article.

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Human Participant Protection

This study conformed to the human participant protection requirements of the Committee for Human Research, University of California, San Francisco.

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