

**Effect of Training Program on Physicians' Attitude towards Knowledge and Practice
Related to Assessment and Screening of Clients with HIV/AIDS**

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Abstract

This is a study which examines the effects of an educational program on Hispanic physicians' attitudes towards and knowledge of HIV/AIDS. The study also examines physicians' practice patterns related to the screening and testing of Hispanic patients at risk for the disease. A one-on-one educational program was taken to the physician's office at a time convenient to the physician. A pre- and post-test design is used with questionnaires developed for the study that assess self-reported data related to physicians' attitudes, knowledge and practice patterns. A convenient sample of physicians participated. This limited the generalizability of the results to other groups. However, it does point out that a training program can alter physicians' screening and testing practices as well as their attitudes towards clients with HIV/AIDS. This has implications for providers in remote rural areas or in medically underserved communities where access to formalized continuing education may be limited or offered at times not compatible with a busy practice. The study may suggest that one kind of training and education need to be

planned and developed to facilitate provider participation. Perhaps, online courses or programs might be most effective of providing this one on one approach.

Keywords: HIV/AIDS, Hispanic physicians, practice patterns, physician education

Effect of Training Program on Physicians' Attitude towards Knowledge and Practice Related to Assessment and Screening of Clients with HIV/AIDS

The purpose of this study was to examine the effects of a training program for Hispanic primary care physicians on their resulting knowledge of, practice patterns relating to, and attitudes towards the screening, testing of patients at risk for developing HIV/AIDS and/or referral of patients who test positive. Several studies have examined sexual health risk assessment and counseling in primary care (Manheux, Haley, Rivard & Gervais, 1999; Haley, Manheux, Rivard, & Gervais, 1999). One study investigated evaluation of sexual health risk behaviors by primary care physicians during general medical examinations. A survey, using a stratified sample of over 1200 physicians, indicated that fewer than half the respondents reported routinely inquiring about condom use and number of sexual partners.

Educational preparation and extended training of physicians has been shown to have a positive effect on screening, testing and counseling of patients at risk for developing AIDS. Radecki, Shapiro, Thrupp, Ghandi, Sangha & Miller's (1999) research demonstrated that fear and misgivings concerning HIV and perceived need for screening and testing at risk individuals changed with further education and training of the physicians. Although significant changes have been realized in attitudes towards HIV/AIDS, studies demonstrate that personal prejudices can cause critical delays in testing and screening (Chesney & Smith, 1999). This delay in screening and testing by physicians occurs in the general population. This delay is also prevalent in the Hispanic/Latino community (Wainberg, 1999).

Residency training has a profound effect on physicians' screening and testing behaviors. Medical programs differ in their preparation of physicians to screen, counsel, refer and/or treat patients with HIV/AIDS (Yedida & Berry, 1999).

Well over a million people in the United States are estimated to be infected with HIV, a national prevalence of 0.3 percent (Freedberg & Samet, 1999). Studies indicate that general practitioners have widespread contact with patients testing positively for HIV (Kirkman, Scott & Bartos, 1999). However, physician's recognition of common symptoms and sequelae in patients who have AIDS also needs improvement (Fontaine, Larue & Laussauniere, 1999; Bach, Calhoun & Bennett, 1999). Preventing transmission of HIV by assessing HIV positive patients for risky sexual and needle-sharing behaviors is also a critical role for general practitioners (Gerbert, Brown, Cooke, Caspers, Love & Bronstone, 1999).

A survey by a leading medical society (1998) indicated that physicians were not performing routine counseling, screening and testing of high-risk patients. This study also indicated that physicians were not always knowledgeable about counseling and the referral of patients who tested HIV positive.

In conclusion, it is apparent from the literature that physicians have a great deal of contact with potential high-risk patients. The physicians' education and training does not fully prepare them for screening of or testing related to HIV diagnosis. In addition, despite the increasing prevalence of HIV, physicians are not routinely including risk assessment for HIV/AIDS, nor are they providing counseling to patients testing positive to halt transmission of the disease. Education and training have been shown in other disease processes to have a positive effect on the delivery of care. Therefore, this particular study evaluated the effect of an educational program on the Hispanic physicians' knowledge of, attitudes towards, and practice behaviors with regard to screening, testing and referral of patients at risk for HIV/AIDS. Since learning is comprised of an affective domain (attitudes), cognitive domain (knowledge) and a

psychomotor domain (skills/practice), these three areas were used to evaluate changes in physician behaviors as an outcome of the training intervention (Mager, 1997).

Background

All Hispanic physicians participating in the training practiced in predominantly urban, economically disadvantaged, medically underserved areas (MUA's) where the majority of the physicians' clients were Hispanic or Latino. The training program was developed under the auspices of a national Hispanic physician's medical society. A planning committee of Hispanic physicians developed the educational program used in the study. Program content was developed based on the society's survey results from the approximately 4000 Hispanic physicians who are members.

Based on survey data, a four-part, modular program on screening, testing of high risk and referral of patients testing positive for HIV was developed. The program was implemented on a one-to-one basis at the physician's place of practice. Six instructors for the program, all Hispanic physicians themselves, trained for six months with an attending at a large teaching hospital. This facility also had an extensive inpatient and outpatient population of clients diagnosed with AIDS. All of the physician trainers were bilingual. All materials for the program were developed by this newly trained cadre of physician instructors in conjunction with nationally renowned consultants in AIDS/HIV prevention, detection and treatment. Evaluation materials for the program were also developed by the physicians and consultants and will be described in the methodology. Course materials included an extensive list of testing, referral, and community support services available to HIV clients. All program materials were printed in Spanish and English. All four of the three-hour classes were taught on a one-to-one basis by the physician instructors in Spanish or English as the physician learner preferred. Classes followed a lesson

plan with very specific content for each module. Audiovisual materials, references, handouts and other supplementary course materials were all standardized for consistency and uniformity. The modules were scheduled at convenient times for the physician learner. The rationale for one-to-one instruction was based on the physicians' expressed needs indicated in the pre-program survey. This approach allowed the physician instructors to answer questions, clarify areas of content, and discuss issues as the learner needed or desired.

Methodology

The basic design for this study was a non-experimental, pre-test/post-test design to evaluate the effects of the educational intervention on physicians' attitudes towards, practice patterns related to, and knowledge about, the screening, testing and referral process related to HIV detection and treatment.

Physicians were recruited to attend the actual program through publications distributed to the medical society's membership. Physicians called a point of contact at the organization and indicated interest in participating. The point of contact at the society would then contact the interested physician and set up four appointments for the training to be provided at the physician's office. Physicians taking the program also referred fellow professionals from other locations to participate in the program. All participants for the program were self-selected. The use of this convenient, self-selected sample population limits the generalizability of results to any other physician group. However, this study may provide insight into methods of providing education to health care providers that may change knowledge, attitudes, and practice with regard to HIV/AIDS. Completion of the tests and instruments before and after the program was voluntary and confidential. Participating physicians were advised that data would be examined and discussed in the aggregate and that the instructor would only know their individual identity.

The physician trainers in conjunction developed the instruments used to measure attitudes, practice patterns and knowledge with consultants. Items requesting demographic data were included with the instruments administered prior to the course. All three instruments were administered before and after the course and were identical.

One instrument queried physicians' level of knowledge with regard to screening, testing, referring and treatment of the symptomatic or asymptomatic patient with HIV/AIDS. The same test was administered pre- and post-program. This was a standard type of written objective test with 50 multiple-choice questions.

The second questionnaire queried physicians' attitudes towards different aspects of screening, testing and treatment specific to HIV/AIDS. The instrument used a five point Likert scale with responses ranging from "not at all" to "all the time". It contained 30 items. The same test was administered to the physicians before and after their training was complete.

The practice pattern questionnaire asked physicians to rate the frequency with which they performed screening, counseling, testing of high risk client as well as the frequency of referral and treatment of symptomatic or asymptomatic clients. It contained 20 items. This same questionnaire was administered before and after the educational program.

All three instruments were administered to physicians in Spanish or English as the physician learner preferred. Physicians at the beginning of their first class or module completed pre-program instruments. Post-program instruments were administered four to five weeks after the completion of the fourth module or class. The time frame for the course implementation was July 1998 through February 1999. On average it took physicians about two months to complete all four modules. The data was collected during that same time frame.

All instruments developed were evaluated for face validity by physician consultants to the project. All instruments were developed for this study therefore no prior reliability scores were available on any of the instruments prior to use within this study.

The specific research question for this investigation was: How will physicians' test scores differ on knowledge, attitudes, and practice patterns before and after an HIV/AIDS training program? Data were analyzed using selected descriptive and nonparametric measures. Reliability coefficients using Cronbach's Alpha were determined on the attitude and practice pattern measures. An item analysis was performed on the objective test measuring knowledge.

Physicians completing the program were also asked to complete a learner evaluation. They were asked to rank order content they found most helpful within the present course. Participants were asked to rate their level of satisfaction with instructors, content, materials and logistics of the completed course. Physicians were also asked to comment on their self-perceived accomplishment of the behavioral/educational objectives for the program. The evaluation instrument used a five point Likert- type scale with five indicating "high satisfaction" down to one indicating "no satisfaction."

Results

Approximately 120 physicians completed the training within the July to February time frame. Of these 120 physicians, there was complete data for 114 of this group.

The demographic information collected on the physician participants indicated that the group was predominantly male (78%) and Hispanic (98%). The majority of the group had less than 10 years experience (66%). Approximately 51 percent of the group were in private practice with the remainder practicing in hospital- or community-based clinics. Almost all the physician's (95%) indicated that they had less than 50 clock hours of training on HIV/AIDS. The

major areas of practice for the group were family or general practice (51%). About 25 percent of the physicians indicated their practice area was pediatrics; 15 percent indicated internal medicine; and, five percent indicated obstetrics and gynecology. The remaining ten percent of the physicians practiced in surgery or urology or geriatrics.

The average score on the pre-test assessing knowledge was 80 percent. The average score on the written post-test was 93 percent with a range of 80-100 percent. An objective test item with a reliability of less than 85 percent was not computed into scoring of the pre- and post-test. Two items were discarded and the score on the remaining 48 questions were used in computation of both test scores. An overall reliability of $r^3 .95$ was calculated on the attitude instrument using Cronbach's Coefficient alpha. T-tests performed on the pre- and post- items of the attitude scale indicated statistically significant differences on only two of the attitude scale items selected for measurement in this study. Results indicated that physicians felt more comfortable discussing sexual issues with their clients after participating in the educational program. There were statistically significant differences pre- and post-program ($p < .10$) on the discussion of sexual issues with patients and the physicians' level confidence in assessing HIV risk behaviors. These changes are portrayed in Table 1.

Table 1
T-Tests HIV Training Program Attitudes Towards HIV Infection

Item	Means (Pre & Post)	Std Dev (Pre & Post)	Significance p ³
Significance of HIV in Community	3.75; 4.37	1.06; 1.06	.94
Discussing Sexual Issues	2.93; 3.20	1.30; 1.60	.02*
Confidence in Assessing HIV Risk Behaviors	3.86; 4.62	.88; .69	.001*
Knowledge of Opportunistic Infections	3.26; 4.19	1.03; 1.01	.82
Knowledge of Antiretroviral Therapy	2.62; 3.90	1.10; 1.05	.66
Confidence in Treating HIV Clients	2.4; 3.4	1.27; 1.38	.39
Motivation to Treat Asymptomatic Patients	2.79; 3.68	1.39; 1.30	.50
Motivation to Treat Symptomatic Patients	2.59; 3.41	1.48; 1.36	.38
Comfort Treating HIV Infection	2.10; 2.57	1.90; 2.04	.43
Comfort Treating Patient with HIV	1.80; 2.28	1.74; 1.93	.25

* Statistically Significant at P³ < 10 Level

Table 2
T Tests Analyzing Changes in Practice HIV Services

Item	Mean (Pre & Post)	STD (Pre & Post)	Significance P ³
Risk Assessment	.77; .97	.06; .02	.00*
Pretest Counseling	.57; .90	.07; .04	.00*
Testing	.62; .81	.07 : .05	.10*
Post-Test Counseling	.51; .79	.07; .06	.16 †
Treatment Uncomplicated	.28; .38	.45; .49	.63 †
Treatment Opportunistic Infections	.26; .40	.06; .07	.48
Treatment of AIDS	.17; .25	.38; .43	.41

* Statistically Significant at P³. 10 Level of Probability

An overall reliability of $r^3 .95$ was calculated on the practice instrument using Cronbach's Coefficient alpha. T-tests were also performed on all items in the practice pattern questionnaire. Results demonstrated statistically significant changes ($p < .10$) on specific practice items related to risk assessment and counseling (See Table 2). When examining practice patterns for physicians treating all age groups in their practice, statistically significant differences in practice patterns occurred with patients under the age of 20 (See Table 3). Statistically significant changes occurred with regard to the actual number of patients tested and/or referred to an independent lab for testing (See Table 4). Statistically significant differences were also indicated with regard to assessment, screening and counseling of patients with high-risk behaviors (See Table 5). All of these differences were statistically significant at the $p < .10$.

Table 3
Changes in Practice

Item	Means (Pre & Post)	STD (Pre & Post)	Significance P ³
Number of Patients Tested	19; 29	33; 50	.006*
Patients Referred to Lab	18; 42	33; 46	.004*
Physical Evaluation	.33; .72	.47; .45	.71
Monitoring of CD4 Counts	.33; .45	.071; .075	.71
Antiretroviral Therapy	22; 28	.45; .42	.60
Prophy for Opportunistic Infections	.31; .40	.60;.07	.69

Statistically Significant at P³. 10 Level of Probability

Table 4
T Test for Practice Changes which Patients Assessed for Risk of HIV Infection

Item	Means (Pre & Post)	STD (Pre & Post)	Significance P ³
All Patients on First Visit	.47; .48	.07; .07	.89
All Patients Every Visit	.66; .68	.25; .25	.94
Selected Patients on First Visit	.37; .43	.07; .08	.48
Selected Patients on Every Visit	.22; .20	.42; .42	.84
Patients Between the Ages of:			
0-15	.00; .09	.00; .04	.04*
15-20	.08; .18	.042; .058	.04*
20-30	.17; .16	.057; .055	.77
30-40	.13; .13	.05; .05	.94
40+	.11; .11	.04; .04	.94
All	.022; .045	.02; .031	.02*

Statistically Significant at P³. 10 Level of Probability

Table 5
Patients with Whom They Discuss Testing

Item	Means (Pre & Post)	STD (Pre & Post)	Significance P ³
Pts with Multiple Partners	.90; .97	.04; .02	.00*
Men Who Have Sex with Men	.82; .95	.05; .03	.00*
Pts Who Consume ETOH	.57; .88	.07; .04	.00*
IV Drug Users	.68; .93	.04; .03	.05*
Pts Who Have Had an STD	.68; .93	.04; .03	.05*
Sexually Active Adolescents	.84; .95	.05; .03	.00*

Statistically Significant at P³. 10 Level of Probability

Discussion

It is obvious that the program had an effect on the attitudes towards, practice patterns for, and knowledge level of the physicians participating in this educational intervention.

The attitudes selected for inclusion in the study indicated that the statistically significant changes for this group of physicians centered on their discussion of sexual issues and their level of confidence in assessing HIV risk behaviors. The frequency of discussion increased as a result of the program. The physicians self-reported level of confidence also increased as an outcome of the educational program.

Similarly, changes in practice patterns reflect a statistically significant increase in physician's completing risk assessment, pretest counseling, and testing of patients. This of course, is self-reported data but the finding is verified by the changes in the actual numbers of patients tested and/or referred to a lab for testing by this group of physicians. Although there were no statistically significant differences in which patients were assessed for HIV and the frequency of that assessment (first visit, every visit), there was a statistically significant changes in the assessment of risk behaviors in patients under 20 years of age. Information provided in the program about the increasing incidence of HIV/AIDS in the adolescent population may have prompted physicians to consider risk behaviors in that group.

There were statistically significant increases in the frequency of the physicians' discussions of testing in high-risk groups. This would indicate that physicians, as they become more aware of the high-risk groups, would have a tendency to test or refer those groups with greater frequency.

The physicians were asked to evaluate the program. The rank ordering of the most helpful topics indicated that physicians find the information on assessment, screening and testing most helpful to their practice (See Table 6). Considering that most of this group were primary care or general practitioners, the evaluation seems to indicate that content related to screening and testing rather than treatment of HIV patients fits the physicians' learning and practice needs.

Most physicians on the final learner evaluation indicated that although they would refer patients for treatment, knowing the treatment protocols helped them in the provision of care for unrelated health problems to symptomatic patients receiving therapy. Physicians also indicated that content on treatment was helpful in terms of discussing potential referral and treatment with clients who tested positive. Evaluation of the course validated the appropriateness of the one on one teaching. The majority of physicians indicated that this was most beneficial. The majority valued the ability to ask questions and clarify content immediately during the session.

As part of the evaluation of this program, the physician instructors were also asked to provide feedback on the process and content of the program in a focus group session. All of the instructors thought that the content was thorough and comprehensive. All the instructors felt that going to physician's office, although labor intensive, was the only practical way to get the amount of content to the learners. There was also a discussion of having the course web-supported with some in person instruction or a completely web-based format with chat rooms and bulletin boards to facilitate instructor and learner communication. Others thought about videotaped instruction or lectures using a CD-ROM format. Another recommendation from the physician instructors was to provide the content via videotapes, the internet and/or teleconferencing (where available) with on-site visits to physician offices for clarification of information and questions about materials. This might provide a more cost effective but still convenient approach for the physician learners. However, what would be the availability of facilities where the physicians actually practice. These alternatives require further study. The technology is available to support these other media options. However, it is unclear how the Hispanic physicians would respond to or participate in web-based learning or alternatives.

Table 6
Topics Found Most Useful, Rank Order

1	Counseling
2	Diagnostics and Evaluation
3	ICPS Treatment Guidelines
4	Referral Information
5	Management of Asymptomatic Patients
6	Management of Opportunistic Infections
7	Use of Antiretroviral Therapy

Conclusions

Educational programs can alter assessment, screening and testing behaviors of Hispanic physicians especially those that are tailored to the individual physician and provided at their place of practice. Educational interventions can also alter attitudes towards and knowledge of screening, testing and referral processes. The one on one learning was well received by the physicians. If this program could be offered via the web, the course would have greater availability and accessibility for physicians. It may be more cost effective than the current method of program delivery. In medically underserved and rural areas where physicians do not have access to programs or cannot afford to leave their practices for extended periods, one on one instruction that goes to the physician may be required. It is obvious that the intervention had a positive impact on the knowledge of, attitudes towards, and practice patterns of physicians relating to screening, testing and referral with regard to HIV/AIDS. Using different forms of instructional technology should be compared to one on one instruction in future studies. This present study did demonstrate that one on one instruction at the physician's place of practice enhanced selected aspects related to screening, testing and referral of patients at risk for HIV/AIDS in the Hispanic community. Other educational methodologies should be piloted and tested to ascertain if they had equally positive results.

Implications

The implications of this research indicate that an educational program aimed at specific groups of health providers can modify their knowledge, attitudes and practice pattern toward HIV/AIDS. It also indicates that at times education has to be brought to the provider on their terms rather than in formal programs at a distance from their practice.

All of the providers in this study practiced in Hispanic or Latino communities in predominantly large urban, medically underserved areas along the eastern and southeastern United States. However, there was a small cadre of physicians who dealt with migrant or seasonal farm workers in the southeast. All of them were unfamiliar with the community resources to support screening and testing processes.

It was very apparent in this study that physicians do not necessarily receive all the necessary knowledge regarding HIV/AIDS. They required additional training and education to adequately assess and screen at risk clients. This may indicate that more information and training is required during basic preparation to integrate this knowledge into the curriculum. It may also indicate that other providers also do not receive in depth training on HIV/AIDS.

Just as this is critical in the Hispanic community in the inner city, it is equally important to those physicians and other primary providers in rural communities. Their knowledge, attitudes and practice patterns related to HIV/AIDS will impact on their assessing risk, screening and/or referral for testing. As HIV/AIDS becomes more prevalent in rural communities, it is important that the health care providers who are the front line for prevention are more knowledgeable about risk factors and adequate screening and referral. If rural providers can't access important information about HIV/AIDS, then appropriate methods for bringing it to them must be a priority.

Limitations

This is a self-selected, relatively small group of physicians. Responses of this group are certainly not generalizable to other groups of physicians. This intervention was used and evaluated primarily with Hispanic physicians practicing in largely Hispanic medically underserved communities. Physicians practicing in these areas are limited in number and have typically large practices. The size of their practice has a direct bearing on the physician's ability to access other forms of education. Therefore, comparisons between this educational approach and others potential programming were not possible for this group of physicians.

Recommendations

It is recommended that other forms of programming be developed and evaluated to ascertain if they achieve similar results with larger more representative physician samples. It is also recommended that this study be replicated with a larger cadre of rural physicians who treat migrant or seasonal workers. The approach used to reach the physicians in this study could be modified and used for other health care providers working in rural or other medically underserved areas. Other professional health care provider like their physician colleagues may not receive adequate preparation in terms of HIV/AIDS screening, testing and referral. HIV/AIDS is certainly not just a urban problem, the incidence and prevalence of it in all age groups is increasing rapidly in rural areas (Bushy, 2000). As the incidence increases, serious plans for the education of rural providers will need to be developed. The approach in this study worked for these physicians perhaps the approach would be appropriate for rural physicians and health care providers as well.

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