

# Self-Reported HIV And AIDS Experience, Practices, And Knowledge Of Pennsylvania Family Physicians

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**Abstract:** *Background:* Patients with disease caused by the human immunodeficiency virus (HIV), while still more commonly treated in urban settings, are being seen in nonurban areas in numbers rapidly outstripping the local availability of specialists with expertise in HIV or acquired immunodeficiency syndrome (AIDS).

*Methods:* A questionnaire designed to measure self-assessed experience, practices, and knowledge regarding basic aspects of HIV was mailed in 1989 to the 2177 members of the Pennsylvania Academy of Family Physicians.

*Results:* The response rate was 72 percent. Approximately 95 percent of physicians surveyed had been asked questions by patients about AIDS, 30 percent had a patient with a confirmed positive blood test, and 27 percent had a patient with symptomatic HIV disease in their practice.

*Conclusions:* Although most family physicians indicated that they were comfortable in recognizing persons at risk, counseling, and using tests to diagnose HIV and AIDS, more than one-half reported practice patterns at variance with published guidelines. Respondents were most uncomfortable with their knowledge and skills regarding legal issues, state and community resources, and caring for patients with AIDS. Continuing medical education courses at local hospitals and written materials were the two methods of AIDS education most likely to be used by respondents. (J Am Board Fam Pract 1992; 5:249-55.)

Acquired immunodeficiency syndrome (AIDS), no longer confined to large urban centers, is seen increasingly in rural and smaller urban areas.<sup>1</sup> Although recent medical advances offer hope for longer, healthier lives for human immunodeficiency virus (HIV)-positive persons, there is no cure in sight, and the number of cases will be increasing for decades. Prevention of exposure to HIV and early intervention in HIV infection are therefore crucial to the effort to halt the epidemic. Primary care physicians are in a strategic position to effect both kinds of intervention.

In 1986, Lewis, et al.<sup>2</sup> interviewed 1000 primary care physicians in California and concluded that an important number of them could not be

counted on to diagnose HIV disease, to counsel or refer patients at high risk of HIV infection, or to provide adequate, appropriate advice and reassurance about HIV infection. A follow-up study in 1988 by Kurata, et al.<sup>3</sup> noted that a majority of family physicians surveyed did not have the knowledge or competency necessary to provide appropriate AIDS-related care. More than one-half the respondents surveyed by Milne and Keen<sup>4</sup> in Great Britain expressed little interest in education about HIV, and 1 in 6 would not dissent from the notion that AIDS could be controlled only by criminalizing homosexuality. More than one-half of a sample of outpatients with AIDS studied by King<sup>5</sup> said they wished their general practitioner would take a greater part in their medical care. In a study by Bredfeldt, et al.,<sup>6</sup> however, more than 62 percent of respondents to a national survey of family physicians in 1989 stated that they believe physicians have a right to refuse care to patient with AIDS.

On a more positive note, findings from a longitudinal study conducted between 1984 and 1989 by Lewis and Montgomery<sup>7</sup> indicate that primary care physicians in Los Angeles have responded to

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the increasing numbers of patients with AIDS by assuming greater responsibility for the care of more of those patients. In addition, the authors found that primary care physicians' sexual history-taking techniques improved greatly during the years of the study.

Because in the near future tertiary care institutions will be unable to maintain the service load of ever-increasing numbers of patients with AIDS, effective ambulatory care for more of these patients by primary care physicians will be necessary.<sup>8</sup> The purpose of our study was to obtain information that will assist in the formulation of effective plans for educating primary care physicians to deal effectively with the AIDS epidemic.

### Methods

From January through March 1990, we mailed questionnaires to all 2177 family physicians in Pennsylvania who are members of the Pennsylvania Academy of Family Physicians (PAFP). Approximately 80 percent of Pennsylvania family physicians are members of the PAFP. The survey was created in cooperation with the Pennsylvania Department of Health and was endorsed by the PAFP. Two follow-up mailings were done at 3-week intervals. Questions were designed to assess the amount of experience physicians had had with various aspects of HIV in the calendar year 1989 and their diagnostic, management, and counseling practices relevant to HIV disease. Physicians' degree of comfort with their personal knowledge of HIV-related issues was assessed, together with their interest in different formats for continuing medical education on the subject. All responses were anonymous. Responses were grouped by six health districts as defined by the Pennsylvania Department of Health and the five most populous counties (each considered a health district in its own right) to allow for analysis of responses as a function of regional AIDS prevalence.

Contingency tables were used to analyze the responses to the questionnaire. Statistical tests of hypotheses were performed using generalized Mantel-Haenszel methods.<sup>9</sup> The test for association was used when neither factor was ordinal. The test for differences in mean scores was used when one factor was ordinal. The test for nonzero correlation was used when both factors were or-

dinal. When we compared levels of counseling and testing for various risk groups, we created composite indices based on the sum of the responses to the individual questions. The Bonferroni method was used to adjust *P* values when multiple comparisons were made.<sup>10</sup>

### Results

We received 1591 replies to the survey, of which 31 were duplicates. The return rate, corrected for duplicates, was 72 percent. The response rate was highest from suburban Philadelphia's Chester County (81 percent) and lowest from the city of Philadelphia (61 percent). There was an inverse relation between response rate and the AIDS prevalence rate of the health district or county in which the physician practiced ( $\chi^2 = 9.5$ , *df* = 4, *P* = 0.05). We assumed that nonrespondents were similar to respondents.

### HIV or AIDS Experience

Our first set of questions was designed to assess family physicians' experiences with concerns, infections, and diseases associated with HIV in their practices (Table 1). Ninety-five percent of the responding physicians had been asked questions about AIDS by at least one patient during 1989. The likelihood of receiving questions about AIDS was positively related to the AIDS prevalence rate of the health district ( $\chi^2 = 28.8$ , *df* = 1, *P* < 0.001, data not shown). Most family physicians (72 percent) had tested at least one patient for HIV infection. There was a significant trend toward more HIV testing with increasing AIDS case density ( $\chi^2 = 37.3$ , *df* = 1, *P* < 0.001, data not shown). Only 30 percent of the family physicians reported having any patients with a positive ELISA confirmed by Western blot test for HIV infection in 1989. Fewer physicians (28 percent) had at least 1 patient with symptomatic AIDS, and fewer than 1 percent had treated 10 or more AIDS patients during that year.

### Referral and Consultation

Physicians with patients positive for HIV or patients with AIDS were asked who provided the medical care for these patients. Of the 566 respondents who had any asymptomatic HIV-positive patients, 195 (35 percent) stated that they referred these patients to other specialists for all their care, 256 (45 percent) managed their

**Table 1. Experiences of Pennsylvania Family Physicians with HIV/AIDS (1989).\***

Experiences	Physicians Responding	
	No.	Percent
<b>Patients asking questions about AIDS</b>		
0	77	5.3
1-10	496	34.4
11-50	586	40.5
>50	287	19.8
Total	1447	100.0
<b>Patients tested in office for HIV infection</b>		
0	413	28.3
1-10	675	46.3
11-50	322	22.1
>50	49	3.3
Total	1459	100.0
<b>Patients referred for HIV testing</b>		
0	726	50.9
1-10	575	40.4
11-50	107	7.5
>50	17	1.2
Total	1425	100.0
<b>Patients with positive enzyme-linked immunosorbent assay, antibody test (ELISA) and Western blot test</b>		
0	1025	69.7
1-10	426	29.0
>10	19	1.3
Total	1470	100.0
<b>Patients with symptomatic AIDS</b>		
0	1077	72.4
1-10	397	26.7
>10	13	0.9
Total	1487	100.0

\*Total numbers of physicians vary because not all respondents answered all questions.

patients in consultation with other specialists, and 115 (20 percent) managed the patients entirely on their own. Family physicians with symptomatic AIDS patients ( $n = 545$ ) were even more likely to refer or seek consultation: 221 (40 percent) referred AIDS patients elsewhere for all their care, 288 (53 percent) obtained consultations for these patients, and only 35 (7 percent) cared for AIDS patients alone.

### Self-Reported Practices

Respondents were asked to rate the frequency with which they counseled their high-risk patients about ways to reduce their risk of HIV infection (Table 2). More than one-half of

the respondents answered that they "almost always" (i.e., routinely) counseled homosexual men, intravenous drug abusers, and persons with sexually transmitted diseases about ways to minimize exposure to HIV. The general population of sexually active individuals, however, was routinely counseled on ways to reduce risk by only 17 percent of the respondents. Within each risk group, physicians from districts with a higher AIDS prevalence did more counseling than those from districts with a lower AIDS prevalence ( $\chi^2 = 7.7$ ,  $df = 1$ ,  $P = 0.006$ , data not shown).

Respondents were also asked about blood testing for HIV for patients who engaged in high-risk behaviors as designated by the Centers for Disease Control. Two-thirds of the respondents routinely recommended HIV testing for all homosexual men and intravenous drug abusers. Persons who considered themselves at risk for HIV infection (62 percent) were also frequently advised to have testing, while a minority of physicians routinely recommended testing for persons with sexually transmitted diseases (27 percent) or heterosexuals with more than 1 partner (18 percent). The likelihood of recommending HIV testing for persons with sexually transmitted diseases ( $\chi^2 = 14.3$ ,  $df = 1$ ,  $P = 0.01$ ), many sex partners ( $\chi^2 = 7.45$ ,  $df = 1$ ,  $P = 0.006$ ), and those who had received blood transfusions between 1978 and 1985 ( $\chi^2 = 4.52$ ,  $df = 1$ ,  $P = 0.033$ ) was higher in areas of a higher AIDS prevalence, but there was no significant difference in the likelihood of recommending testing for other risk groups. Physicians with at least 1 HIV-positive patient in their practice in 1989 ( $n = 451$ ) were significantly more likely than those who saw no HIV-positive patients to recommend HIV testing for all risk groups ( $\chi^2 = 15.2$ ,  $df = 1$ ,  $P < 0.001$ ).

Respondents who had ordered HIV testing for at least 1 patient in 1989 were asked about their counseling of patients being tested for HIV infection (Table 2). Nearly all (97 percent) routinely informed the patient of the result. Most routinely discussed ways to reduce the risk of HIV transmission (84 percent) and the need to maintain confidentiality of test results (87 percent) with patients for whom they ordered HIV testing. The majority (68 percent) routinely discussed possible negative social effects

**Table 2. Practice Characteristics of Pennsylvania Family Physicians about HIV or AIDS (1989).**

Survey Question Categories	Total No.*	Frequency of Practice (%)		
		Almost Always (Routinely)	Sometimes	Almost Never
<b>Counseled about ways to prevent transmission of HIV</b>				
Homosexuals and intravenous drug users	978	59.6	18.7	21.7
Persons with sexually transmitted diseases	815	56.2	33.2	10.6
Heterosexuals with many partners	1354	41.8	40.2	18.0
Sexually active teens	1404	45.9	39.4	14.7
All sexually active individuals	1436	17.2	57.0	25.7
<b>Recommended HIV testing</b>				
Homosexuals and intravenous drug abusers	979	66.0	20.9	13.1
Persons with sexually transmitted diseases	1324	26.9	48.0	25.2
Heterosexuals with multiple partners	1304	17.5	45.3	37.2
Persons with blood transfusions, 1978 – 1985	1290	31.8	34.6	33.6
Persons planning marriage	1278	6.1	28.1	65.8
Persons who consider themselves at risk	1390	62.0	28.8	9.4
Children of persons at high risk	916	32.6	27.0	40.3
<b>Testing practices</b>				
Inform patient of results	1115	97.3	1.6	1.1
Discuss ways to decrease risk of transmission	1104	84.4	11.1	4.5
Discuss confidentiality of results	1109	87.2	9.0	3.8
Discuss possible negative consequences of positive results	1102	67.9	18.6	13.5
Obtain written consent for testing	1101	40.6	13.7	45.7

\*Total who saw any patients in this category (100%).

of receiving a positive test result; however, fewer than one-half (41 percent) routinely obtained written informed consent before ordering HIV testing.

**Self-Assessed Knowledge**

Respondents rated their degree of comfort with their knowledge of HIV and AIDS (Table 3). The majority were very comfortable with their ability to identify patients at risk, counsel patients on ways to prevent HIV transmission, and use tests to diagnose HIV infection.

At least one-quarter, however, were not at all comfortable with their knowledge in one or more of the following areas: medical follow-up of HIV-positive patients, procedures for reporting AIDS, care of symptomatic patients with AIDS, legal issues regarding HIV, location of state counseling and testing sites, and location of community resources for HIV-positive individuals. Physicians who were not comfortable with their ability to recognize persons at risk for AIDS were much less likely to counsel risk reduction for homosexual

**Table 3. Family Physicians' Degrees of Comfort with Their Knowledge of HIV and AIDS (1989).**

Knowledge	Total No.*	Comfort Level (%)		
		Very	Somewhat	Not at All
Identify patients at risk	1535	64.2	32.0	3.8
Counseling on ways to prevent HIV infection	1532	68.0	29.2	2.9
Tests to diagnose	1535	62.9	34.0	3.1
Informed consent and pretest counseling	1526	40.0	45.9	14.1
Medical follow-up of HIV	1528	21.6	50.5	27.9
Signs and symptoms of HIV or AIDS	1536	33.8	56.7	9.5
Preventing HIV transmission in office	1533	64.1	31.9	4.0
Procedure for reporting AIDS	1528	23.1	50.3	26.6
Care of patients with AIDS symptoms	1530	13.9	47.8	38.3
Legal issues regarding HIV	1526	8.3	45.0	46.7
Location of state counseling or testing sites	1514	16.8	39.4	43.8
Location of community resources for HIV-infected patients	1517	15.0	42.7	42.7

\*Total who responded in this category (100%).

men and intravenous drug abusers ( $\chi^2 = 39.3$ ,  $df = 1$ ,  $P < 0.001$ ), persons with sexually transmitted diseases ( $\chi^2 = 46.2$ ,  $df = 1$ ,  $P < 0.001$ ), heterosexuals with more than 1 partner ( $\chi^2 = 60.0$ ,  $df = 1$ ,  $P < 0.001$ ), sexually active teenagers ( $\chi^2 = 56.0$ ,  $df = 1$ ,  $P < 0.001$ ), and all sexually active individuals ( $\chi^2 = 36.4$ ,  $df = 1$ ,  $P < 0.001$ ).

### Continuing Medical Education

Respondents expressed preferences about sources of continuing medical education (CME) on HIV infection and AIDS (Table 4). Ninety-two percent were "very likely" or "somewhat likely" to attend CME lectures at a local hospital and use written materials. Audio tapes (71 percent), video tapes (66 percent), and an 800-AIDS information telephone number (63 percent) were less popular, and only 53 percent of respondents said they might attend a regional or state conference. Physicians who had seen at least 1 symptomatic patient with AIDS were slightly more likely to be interested in CME lectures at local hospitals and written material on AIDS, but these differences were not statistically significant. Fifty-seven percent of physicians who routinely referred their patients with AIDS elsewhere for care were interested in CME lectures on AIDS compared with 72 percent of those who treated patients with AIDS with the help of consultants and those who provided all medical care for their AIDS patients ( $\chi^2 = 14.5$ ,  $df = 1$ ,  $P < 0.001$ ).

### Discussion

That so many family physicians were willing to take time to read and complete this survey reflects a high level of interest in this topic. Even in the county with the lowest questionnaire return rate (Philadelphia), the response was greater than usual for a mail survey of physicians. Most respondent family physicians have had some patient

contact requiring elementary knowledge of HIV testing and counseling. As the presence of HIV infection increases in nonurban areas, family physicians will need not only this basic knowledge but also more sophisticated levels of HIV and AIDS management competencies to meet the needs of their patients.

Although nearly all respondents indicated that they were "somewhat comfortable" to "very comfortable" with recognizing patients at risk, counseling on ways to reduce risk of HIV transmission, and using tests to diagnose HIV infection and AIDS, many reported practices at variance with published guidelines from the Centers for Disease Control (CDC).<sup>11</sup> We chose CDC guidelines as a standard of comparison because they incorporate most of the present epidemiologic knowledge of HIV disease. We acknowledge that these guidelines are not universally accepted.

More than one-half of the respondents stated that they routinely recommended HIV testing for all homosexual men and intravenous drug abusers and for patients who considered themselves at risk according to CDC recommendations. Fewer than one-third of the respondents routinely recommended HIV testing to other established high-risk groups, such as patients with sexually transmitted diseases or heterosexual persons with many sexual partners. Clinical studies suggest there are many factors that influence the decisions of family physicians to recommend or not recommend HIV testing. For example, one study by Schlumpberger and Murray<sup>12</sup> noted that in making HIV screening decisions, family physicians were more likely to be concerned with the potential mental suffering and well-being of their patients than their concern for the public's well-being. It follows that the close relationship between a family physician and a patient can, in fact, impair objectivity in HIV screening deci-

**Table 4. Likelihood of Family Physicians to Use Continuing Medical Education (CME) on AIDS or HIV (1989).**

Source of CME	Total No.*	Likelihood (%)		
		Very Likely	Somewhat Likely	Not at All Likely
CME lectures at local hospital	1537	66.0	26.0	8.0
Written material	1519	54.8	36.9	8.3
Regional or state conference	1512	12.4	40.2	47.4
Audio tapes	1507	35.2	36.2	28.5
Video tapes	1503	31.3	34.9	33.7
800 telephone number	1513	23.8	39.4	36.8

\*Total who responded in this category (100%).

sions, and this relationship can be an important focal point for continuing education regarding HIV and HIV screening practices.

The CDC guidelines for HIV blood test counseling state that "Individuals should knowingly and willingly give consent before a voluntary test is conducted." Informed consent is now required by law in Pennsylvania but was not during the 1989 study period. Obtaining written informed consent was the aspect of HIV testing showing the greatest deficiency in this study of family physicians. Only one-half of the respondents routinely or sometimes obtained written informed consent before performing HIV testing. Given the enormous medical, ethical, and legal ramifications of HIV testing, it will be important to identify reasons for physicians not obtaining written informed consent. Confidentiality of patient information is essential to protect the individual patient and to encourage voluntary testing among others. In general, the family physicians surveyed appeared to appreciate the importance of confidentiality of HIV test results.

The CDC guidelines also advocate discussing the potential negative social consequences of a positive test result with the patient to be tested. This is currently a legal requirement in Pennsylvania but was not at the time of the survey. Approximately 14 percent of surveyed family physicians never discussed this issue with patients, and 19 percent only "sometimes" discussed it. The survey results did not provide sufficient information for determining what percentage of the testing was done on a "voluntary" versus a "hidden" basis. Future studies of primary care physicians' competence in dealing with HIV and AIDS should attempt to identify factors impeding discussion of the consequences of a positive HIV test.

Approximately one-third of the Pennsylvania family physicians who had asymptomatic patients with HIV infection and 41 percent of the physicians who had patients with AIDS took no part in their care and follow-up. In the next few years, the perceived need to refer HIV patients is likely to overwhelm the practices of the small number of specialists willing to take such referrals. Anecdotal reports suggest that this specialty practice overload has already occurred in areas of the country where the rate of HIV infection is high. Primary care physicians who might otherwise be willing to

assume primary responsibility for the care of patients with HIV infection or AIDS could be intimidated by the need for keeping up with the rapidly expanding knowledge in this field, underscoring the need to make CME on this topic accessible to primary care physicians.

Nearly one-half of our respondents did not feel comfortable with their knowledge of community resources for patients with HIV and AIDS. The many AIDS-related services offered by the Pennsylvania Health Department were not well known to the survey respondents. Among the services provided are a variety of educational materials for patients and physicians and partner identification or contact tracing. Training in HIV-related skills is available on a limited basis to physicians' office staffs. In addition, there are 187 HIV counseling and testing centers throughout the state.

Respondents overwhelmingly favored continuing medical education on HIV at their local hospitals. One way to diffuse the knowledge to the people who need it is to have experts design and conduct seminars at hospitals around the state. Short, attention-getting, highly focused written materials could also have such an educational effect.

### **Conclusions**

The family physicians who responded to this AIDS survey recognized the importance of this subject but demonstrated some significant gaps between their self-assessed knowledge and skill levels and self-reported practices and recommended practice guidelines. Existing resources to help in caring for patients infected with HIV or patients with AIDS were unknown to many physicians. These results suggest the necessity of developing more effective methods to educate and inform physicians about developments in the care of patients with HIV or AIDS, current standards of care, and availability of HIV-related resources. It will be necessary to find ways to motivate physicians who are currently deficient in AIDS information and skills to keep current with at least the essential information on the subject. CME courses at local hospitals appear, from this study, to be the most likely setting for this exchange of knowledge. Lewis and Montgomery<sup>7</sup> showed that primary care physicians in an area with a high percentage of AIDS cases have improved their AIDS-related clinical skills in the years since

AIDS first appeared in their geographic area. It would be preferable to raise the level of AIDS competency of primary care physicians proactively in areas where the number of AIDS patients is still low so that physicians will have the necessary skills when they encounter their first HIV-infected patient.

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