

AIDS in California Family Medicine

Changing Experiences, Knowledge, and Geographic Distribution

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Information regarding practice patterns specific to acquired immunodeficiency syndrome (AIDS) was obtained in 1988 from 1774 family physicians in California using a mail survey. Data were analyzed across the following county groupings: Los Angeles County, other counties in standard metropolitan statistical areas, and counties outside standard metropolitan statistical areas. Comparisons were made with the data from a telephone survey conducted in 1986. Differences over time were analyzed. By 1988, the percentage of physi-

cians treating or referring patients for possible AIDS had more than doubled in counties outside standard metropolitan statistical areas. The percentage of physicians reporting one or more diagnosed cases of AIDS had tripled, a finding that suggests the importance of AIDS in family medicine is increasing at a rapid rate. In addition, survey results indicate that a majority of those surveyed still lack the AIDS-related knowledge and competency necessary to effectively deal with AIDS. *J Fam Pract* 1991; 32:155-160.

In the last few years there has been a dramatic increase in the number of acquired immunodeficiency syndrome (AIDS) patients. The total number of cases in California increased from 4705 at the end of 1985 to 22,228 by September 30, 1989.¹ Twenty-three percent of all AIDS cases in the United States are in California, more than in any other state.² As of August 1989, all California counties had reported at least one AIDS case.³ Information on the experience that family physicians in California have had with AIDS should prove useful to the national medical community as the disease continues to spread. Physicians who are aware of what they may expect to encounter in their practices can more effectively determine ways to prepare themselves through educational opportunities.

This report presents findings of a 1988 AIDS survey of the California Academy of Family Physicians (CAFP). Similarities and differences in practice experiences, general knowledge of AIDS, and shifting geographic distribution trends are described. Results of the present study

are also compared with data from a subset of family physicians who completed a survey by Lewis et al⁴ in 1986. In the Lewis et al study, 1000 active California primary care physicians were surveyed by telephone concerning "their AIDS-related experiences and competencies." Four hundred seventy of those surveyed were family physicians. Comparisons with the Lewis et al survey are made in order to evaluate the impact of the increase in AIDS cases on family medicine.

Methods

Active members of the CAFPP were surveyed beginning in March 1988. Active members were those physicians who had spent at least 20 hours per week in direct patient care over the 3 months prior to the survey. Survey items were field tested in early 1988. The first of three mailings was sent in March 1988 to 3449 active CAFPP members. Seventy percent of all family practice and general practice physicians are members of the CAFPP (personal communication with Jane Hogg, CAFPP, April 1990).

Questions for the 1988 questionnaire were derived from questions asked in the 1986 survey by Lewis et al. Lewis participated in the development of both surveys. The 52-item 1988 survey contained questions designed to address the following issues: (1) manpower and ser-

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Table 1. Survey Response Rate and Number of Patients with Acquired Immunodeficiency Syndrome (AIDS) or AIDS-Related Complex (ARC), by County Group, 1988

County Group	Surveys Returned		Patients in Treatment for AIDS or ARC (Average per Physician)	
	No.	(%)	No.	(%)
Los Angeles County	399	(47.6)	593	(1.5)
San Francisco SMSA	153	(56.3)	1704	(11.1)
Other SMSAs	996	(51.7)	721	(0.7)
Non-SMSAs	226	(54.6)	96	(0.4)
California total	1774	(51.4)	3114	(1.8)

SMSA—Standard metropolitan statistical area.

vice requirements of AIDS patients in terms of physician practice experience with AIDS or AIDS-related complex (ARC) cases, patients positive for human immunodeficiency virus (HIV), and patients at risk; and (2) physician knowledge, skills, education, and attitudes regarding AIDS or ARC and HIV ("competence" measures).*

ARC, which was called pre-AIDS complex by Lewis et al, was defined as the constellation of signs and symptoms indicative of an underlying defect in cell-mediated immunity, but not including an opportunistic infection or Kaposi's sarcoma associated with full-blown AIDS.⁵ Based on this definition of ARC, the following symptoms were considered correct responses to question 44 of the 1988 survey: adenopathy, oral candidiasis, diarrhea, and night sweats or fever. To make the comparison with the 1986 survey consistent, nonproductive cough was also included as a correct response. Inclusion of this symptom, however, did not greatly affect the analysis. Of the 1618 respondents who listed at least one ARC symptom, six who could identify only one symptom listed nonproductive cough.

The percentage of responses in each category was computed for nominal-level variables. Means were computed for continuous variables. The Pearson product-moment correlation coefficient (Pearson's r) was computed to measure the strength and direction of linear association between continuous variables. Student's t test with $n - 2$ degrees of freedom was used to evaluate the statistical significance of the Pearson correlation coefficient.⁶ A P value of less than .05 was considered to be significant.

In the analyses of the 1988 survey data, the high-prevalence standard metropolitan statistical areas (SMSAs) of Los Angeles and San Francisco were separated from other SMSAs. For the comparisons of the

1988 survey responses with the responses of family physicians in the 1986 survey, the results are grouped into three population bases: the SMSA of Los Angeles County, other counties containing SMSA designations (primarily urban), and non-SMSA counties (less densely populated, primarily rural). Results for the San Francisco area as a separate entity could not be identified for family physicians in the 1986 survey.

Results

Response Rates

Results of the 1988 survey are based on responses from 1774 active California family physicians surveyed from March through September 1988 (51% response rate) (Table 1). Demographic characteristics of the respondents were very similar to those of the 1988 CAFP membership. The mean age was 47 years, compared with 48 years for the CAFP membership. Eighty-six percent of the respondents and 87% of the CAFP membership were male. Response rates did not vary widely across county groups. Los Angeles County had a low response rate of 47.6%, compared with a high response rate of 56.3% in San Francisco SMSA. (The San Francisco SMSA includes the counties of San Francisco, Alameda, Marin, and Contra Costa.) Three hundred ninety-nine respondents were from Los Angeles, 153 from the Bay Area, 996 from other SMSA counties, and 226 from rural (non-SMSA) counties.

Practice Experience

During the 6 months preceding the survey, family physician respondents reported treating a total of 1704 patients for AIDS or ARC in the San Francisco SMSA, 593 in Los Angeles County, 721 in other SMSA counties, and 96 in non-SMSA counties (Table 1). Comparison of the number of AIDS cases reported to the California State Department of Health from January 1981 through April 1988 showed a significant correlation with the average number of AIDS or ARC patients treated by family physician respondents per county group (Pearson's $r = .66$, $df = 56$, $P < .001$). In the 7-year period from January 1981 to April 1988, the largest number of AIDS cases was reported in the San Francisco SMSA (5172), with Los Angeles County a close second at 4911.⁷

Results were analyzed separately for SMSA and non-SMSA counties. From 1981 to March 30, 1988, 12,641 AIDS cases in SMSA counties were reported by the State of California. Two thousand nine hundred

* A copy of the questionnaire is available from the authors on request.

Table 2. Family Physicians' Experiences Related to Acquired Immunodeficiency Syndrome (AIDS), 1986 and 1988 (in percent)

Survey Item	Los Angeles		Other SMSAs		Non-SMSAs		Total	
	1986 (n = 108)	1988 (n = 399)	1986 (n = 190)	1988 (n = 1149)	1986 (n = 172)	1988 (n = 226)	1986 (n = 470)	1988 (n = 1774)
Worked up/referred possible case in past 6 months	40.7	47.4	32.4	42.8	14.6	35.8	27.8	42.7
Have patients expressing concern about AIDS	85.2	87.5	81.1	86.2	75.0	88.5	79.8	86.8
Have patients at risk for AIDS	80.2	78.4	74.7	79.5	60.6	85.8	70.8	80.1
Counseled patients at risk for AIDS	67.1	70.4	59.7	68.6	50.5	65.0	58.7	68.5

three patients (22.9%) were reportedly being treated for AIDS or ARC according to the 1988 survey respondents. In non-SMSA counties, 699 AIDS cases were reported, and 211 patients (30.2%) were being treated. Also of note is that for the non-SMSA counties with fewer than 20 state-reported AIDS cases (through March 30, 1988), the number of AIDS or ARC cases reported by survey respondents is 42.8% of the number of AIDS cases reported by the State of California.

Approximately one in five physicians responding to the 1988 survey was currently treating at least one patient for AIDS or ARC. The distribution of physicians treating AIDS or ARC patients was not confined to a few high-prevalence counties. While family physicians in San Francisco reported the largest average number of patients per physician (11.1), respondents from most other large urban counties also reported treating at least one AIDS or ARC patient.* The reported statewide average was 1.8. The percentage of physicians who reported having at least one patient with a diagnosis of AIDS was 37.3% in the San Francisco SMSA, 29.6% in Los Angeles County, 22% in other SMSA counties, and 17.3% in non-SMSA counties. The percentage who worked up at least one patient for AIDS in the 6 months preceding the survey increased from 27.8% in 1986 to 42.7% in 1988. Of the physicians, the percentage who reported at least one case of diagnosed AIDS increased from 8.7% in 1986 to 24% in the 1988 survey.

Respondents were asked to estimate the number of patients in their practices who may be at risk for AIDS. In 1988, 78.4% of Los Angeles respondents reported at least one patient at risk; other SMSA counties including the San Francisco SMSA, 79.5%; and non-SMSA counties, 85.8%. Table 2 shows results from both the 1986 and 1988 surveys. Non-SMSA areas reported the largest percentage increase, not only in cases but in those pa-

tients considered to be at risk (1986, 60.6%; 1988, 85.8%).

Physician Knowledge of AIDS

In the 1988 survey, 77.5% of respondents (1375 physicians) reported that they had attended a conference, workshop, or class on AIDS or AIDS-related concerns during the past year. Slightly more than 28% of respondents had attended three or more educational sessions. Eight percent of respondents reported attending at least three sessions in 1986.

AIDS Competence Measures

Physicians' competence to handle AIDS patients was addressed in terms of sexual history taking, knowledge of AIDS and ARC symptoms, awareness of various HIV-testing methods, and knowledge of evaluation criteria for AIDS screening test results (Table 3).

The majority of physicians (60.7%) did not inquire about the sexual history of new patients or take a supplemental sexual history for established patients. The same percentage reported not taking supplemental sexual histories for patients who had been in the practice for at least 2 years. In the 1986 survey, Lewis et al found that 67.7% of family physicians reported not taking sexual histories on new patients, and 58.2% did not ask sexual history questions of established patients.

There was an increase in the percentage of respondents from 1986 (60.6%) to 1988 (74.1%) who named at least one valid ARC symptom, but a decrease in the percentage who named more than three valid symptoms (20.2% in 1986, 15.9% in 1988). Eight percent more physicians cited at least one AIDS screening test, and physicians named more tests in 1988 than in 1986. The four most frequently reported tests were the enzyme-linked immunosorbent assay (ELISA) (31%), human immunodeficiency virus antibody test (24%), immuno-

* Information on number of AIDS cases per physician by county is available from the authors on request.

Table 3. Family Physicians' Competence and Knowledge Related to Acquired Immunodeficiency Syndrome (AIDS), 1986 and 1988 (in percent)

Survey Item	Los Angeles		Other SMSAs		Non-SMSAs		Total	
	1986 (n = 108)	1988 (n = 399)	1986 (n = 190)	1988 (n = 1149)	1986 (n = 172)	1988 (n = 226)	1986 (n = 470)	1988 (n = 1774)
Sexual history taking								
Not taken, new patients	56.6	51.4	68.4	62.2	74.4	69.5	67.7	60.7
Not taken, patients in practice at least 2 years	42.6	60.7	59.0	60.7	66.7	60.6	58.2	60.7
Knowledge of AIDS and ARC								
Cited at least 1 symptom	56.5	74.4	62.6	73.6	61.0	75.7	60.6	74.1
Cited more than 3 symptoms	25.9	20.6	18.9	14.9	18.0	16.4	20.2	15.9
Knowledge of AIDS screening tests								
Cited no tests	13.0	12.5	15.8	11.6	29.1	13.3	20.0	12.0
Cited at least one test	87.0	87.5	84.2	88.4	70.9	86.7	80.0	88.0
Cited T-cell or HIV test	85.2	60.9	83.7	58.3	69.8	52.7	78.9	58.2
Concern with false-positives	25.0	12.3	16.3	8.5	20.3	6.2	19.8	9.2
Attended AIDS lecture, class, or workshop	75.0	73.9	80.0	74.2	84.3	73.9	80.4	77.5

SMSA—Standard metropolitan statistical area. ARC—AIDS-related complex, HIV—Human immunodeficiency virus.

fluorescent antibody (IFA) test (8%), and Western blot (4%). In the 1988 survey, knowledge of AIDS screening test criteria was determined by asking, "When evaluating a new AIDS screening test, which of the following would you be most concerned about?" In Los Angeles 12.3% of respondents selected "rate of false-positives" as the primary concern, compared with 8.5% in other SMSA counties, and 6.2% in non-SMSA counties. Only 2% of the family medicine physicians who were treating AIDS or ARC patients in 1988 had filled out the necessary papers to allow them to prescribe experimental drugs for these conditions.

Comparison of Surveys

Comparisons with data from the 1986 survey must be interpreted with some degree of caution. The questions in the two surveys were worded as similarly as possible; however, the 1986 survey was conducted by telephone interviews, whereas the 1988 survey was conducted through the mail by self-administered questionnaire. A telephone interview allows greater success with open-ended questions, controlling question sequence, and avoiding item nonresponse; it also permits secondary questions to be asked without cueing. In contrast, a self-administered questionnaire allows for greater length and complexity compared with a telephone survey.⁸

Discussion

In general, experience with AIDS has increased. The increases in cases reported, treated, and referred and the number of patients estimated to be at risk are reflective of

the overall increase in AIDS incidence in California between 1986 and 1988.⁹ Since about one third of the respondents had worked up an AIDS or ARC case and one third had also referred at least one patient for workup, it is likely that family physicians will encounter at least one or two AIDS or ARC cases among their patient populations.

Despite the increase in experience, there is little evidence of a corresponding increase in AIDS-related competence. Although a greater number of physicians were able to name one symptom of ARC, fewer correctly named more than three symptoms. The percentage of physicians who reported attending a lecture, class, or workshop on AIDS was essentially unchanged. Physicians who normally seek continuing medical education apparently continue to include AIDS-related issues in their choice of curricula. There were no dramatic increases in sexual history taking or knowledge of AIDS screening tests. Sensitivity to the issue of confidentiality surrounding AIDS patients and patient sexual preferences in general may be reflected in the continued high percentage of family physicians who do not take sexual histories of their patients.

While the number of AIDS cases remains highest in San Francisco and surrounding counties (followed by Los Angeles), it appears that family physicians in less populous areas increasingly deal with AIDS-related issues. Data show that the smaller the community, the more likely that HIV patients will be cared for by family physicians. The number of AIDS or ARC cases treated by family physicians is 23% of the total number of AIDS cases in SMSA counties and 30% in non-SMSA counties. California family physicians who have not yet been in-

volved in AIDS courses as part of their continuing medical education may be well advised to take such courses. The likelihood of encountering at least one AIDS patient in a family practice setting is rapidly increasing.

Data from this study and similar studies will be useful in evaluating the impact of AIDS on the manpower needs of the California primary care medical system. Since AIDS cases are now dispersed throughout rural as well as urban areas of the state, there are important implications for the family physician who is the primary provider of health care in less densely populated and rural areas.

These data will also assist in evaluating the effectiveness of AIDS curricula for family practice residency programs in the state of California as well as continuing medical education programs offered to CAFP members.

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Commentary

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In the preceding article, Kurata et al¹ report on the changing distribution of acquired immunodeficiency syndrome (AIDS) in California as well as on the AIDS experience and knowledge of California family physicians. The findings are both reassuring and disappointing. As expected, the number of AIDS cases has continued to increase in California (a bellwether for the nation), spreading to 51 of 58 California counties. Concomitantly, the number of family physicians who have managed (or at least evaluated) someone infected with human immunodeficiency virus (HIV) has also increased. Although physicians in rural areas (non-standard metropolitan statistical areas [SMSAs]) initially responded more slowly than their urban colleagues to an increasing demand for HIV-related services,² rural physicians have caught up when it comes to discussing AIDS with their patients. It is disappointing, however, to note that most family physicians (urban or rural) do not take a sexual history routinely, and many family physicians remain uninformed about fundamental aspects of HIV

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disease. Examining these findings more closely is revealing.

Kurata et al provide welcome evidence that family physicians in all areas are increasingly comfortable managing patients with AIDS or at risk for AIDS. From 1986 to 1988, substantially more family physicians reported working up or referring possible AIDS cases. The increase was most marked in rural areas. More impressively, rural physicians (who see fewer AIDS patients) are as willing as their urban counterparts to counsel patients at risk. This finding may in part be because rural patients are increasingly expressing concern about AIDS or because rural physicians are more likely than their urban colleagues to identify patients at risk. Whatever the reason, the finding represents a major change between 1986 and 1988. It is also good news that more than two thirds of all family physicians reported that they counsel patients at risk.

Despite the rapid spread of AIDS and the overall increase in family physicians who have managed AIDS,

family physicians were not managing any patients with AIDS or AIDS-related complex (ARC) in 17 of the 51 counties reporting cases. Are family physicians referring AIDS patients out of the practice? Are people with AIDS avoiding family physicians? Does this observation reflect the population Kurata et al surveyed (members of the California Academy of Family Physicians), possibly overlooking a significant contribution to AIDS care by family physicians not surveyed? Other surveys indicate that nearly one half of primary care physicians believe that only specialists should manage HIV disease,³ so it may be that many family physicians are not managing the AIDS patients who do present.

Lack of training may discourage many family physicians from managing HIV disease. Kurata et al report that only a small percentage of family physicians knew more than one symptom of AIDS. Fully one quarter did not know even one symptom of AIDS. Over the past decade the opportunities for training in managing HIV disease have expanded, so lack of training should not be a barrier. Ironically, Kurata et al found that fewer family physicians have participated in continuing medical education about HIV disease. Are family physicians tiring of hearing about HIV disease when they still see so little of the disease in their own practices? Has the barrage of education convinced primary care providers that there is no need for further training? Whatever the reasons, the survey by Kurata et al confirms the need for training focused on HIV.

Perhaps the most alarming finding by Kurata et al is that few family physicians screen for HIV risk. This finding is especially surprising, since our specialty has long emphasized prevention. We screen for hypertension, hypercholesterolemia, breast or cervical cancer, and so on. HIV infection is preventable. Nevertheless, more than 60% of family physicians did not take a basic sexual history of either new or established patients; one third of family physicians did not counsel patients at risk.

Family practice has also emphasized early intervention. Given that the prevalence of HIV infection is perhaps tenfold the prevalence of AIDS, it is a virtual certainty that family physicians in every area are already seeing or soon will see someone who is infected with HIV. These patients require regular monitoring and prophylactic therapy. Yet most physicians will fail to identify these HIV seropositive patients (most of whom are asymptomatic) unless questions about sexual and drug-using behaviors become a standard part of every history.

The need for improved behavioral screening has recently been reported elsewhere. Bresolin et al³ noted that only 40% of primary care physicians (internists, pediatricians, family physicians, and obstetrician-gynecologists) routinely took either sexual or drug histories. The remarkable concordance of these independent studies strengthens the conclusion that, as primary care providers, family physicians are not adequately screening for HIV disease.

Lewis⁴ has suggested that asking a few simple questions can adequately screen sexual behavior. Is the patient sexually active? If so, are the partners men, women, or both? How many partners are there? Are any partners themselves at risk for HIV? As indicated, what are the specific sexual practices (eg, unprotected anal or vaginal intercourse)? Is there any history of sexually transmitted disease? Is there any sexual dysfunction? To complete the HIV screening, one need only ask whether the person uses drugs (especially injected drugs). Such screening generally takes less than 1 minute.

Kurata et al report on California family physicians, but their findings have implications for primary care providers everywhere. HIV disease will be a major cause of morbidity and mortality for many years to come. Every family physician will confront HIV disease. As the disease becomes more familiar, we must not allow ourselves to be lulled into complacency. We have much to learn to better serve our patients at risk for this disease. And we have much to do, especially in screening patients for risk. Given the extraordinary changes family physicians (and other primary care providers) have made in just the first decade of the AIDS epidemic, there is reason to expect continued (and even greater) changes over the next decade.

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