

Pharmacists' Knowledge Base and Attitudes on Safer Sex, Condoms, and AIDS in a Low Human Immunodeficiency Virus Prevalence State

Saleem E. Noormohamed
Kristi J. Ferguson
Jane W. B. Woodward
Charles M. Helms

ABSTRACT. In the absence of an effective vaccine or a cure for human immunodeficiency virus (HIV), the only option is prevention through education. Pharmacists, the most respected and accessible health-care professionals, can educate the public on prevention and treatment of HIV infection. Information about pharmacists' knowledge and attitudes regarding safer sex, condom use, and acquired immunodeficiency syndrome (AIDS) as well as information on the educational needs of community pharmacists in rural regions is not known. A survey of pharmacies in Iowa was conducted to assess pharmacists' knowledge base, attitudes, and their involvement in the prevention of AIDS. Approximately 50% of the pharmacies (385/770) responded. Twenty-one percent reported having served HIV-infected patrons. Most pharmacists (81%) were personally in-

Saleem E. Noormohamed, Pharm.D., M.S., is Assistant Professor of Clinical and Administrative Pharmacy at the University of Iowa College of Pharmacy; Kristi J. Ferguson, Ph.D., is Associate Research Scientist, Office of Consultation and Research in Medical Education at the University of Iowa College of Medicine; Jean W. B. Woodward, Ph.D., is Assistant Professor of Clinical and Administrative Pharmacy at the University of Iowa College of Pharmacy; Charles M. Helms, M.D., Ph.D., is Professor of Internal Medicine at the University of Iowa College of Medicine, Iowa City IA 52242.

involved in the sale of condoms but only 39% counseled patients on proper condom use. Less than 40% reported they had any formal training in counseling patients in general. Only 60% and less than 70% of pharmacists were aware of the risks of natural membrane condoms and the protection offered by the spermicide nonoxynol-9, respectively. Lack of privacy, time, and customer interest were reported as significant barriers to counseling. Chain pharmacists were more likely to report lacking time and privacy as barriers than pharmacists in other settings. The survey results provide a framework for the design of a continuing education program to address specific issues raised in the survey.

INTRODUCTION

Acquired immunodeficiency syndrome (AIDS) was first recognized as a clinical entity in 1981 after reports of five cases of pneumocystis carinii pneumonia and 26 cases of Kaposi's sarcoma in homosexual men in the United States (1). Since then, more than 200,000 cases of AIDS have been reported to the Centers for Disease Control (CDC) (2). The AIDS epidemic does not appear to be slowing down. Unprotected sexual contact with a human immunodeficiency virus (HIV)-infected individual has been epidemiologically linked to the transmission of the virus. The majority of sexually transmitted cases of HIV have been reported in homosexual men, but events such as Magic Johnson's announcement of his HIV status have called the public's attention to heterosexual transmission of HIV.

Although the number of AIDS cases reported around the country continues to rise, low HIV prevalence states may not consider AIDS as a priority health-care issue. However, there is a potential for substantial increase in the number of AIDS cases especially in younger individuals. It appears that young adults, including pharmacy students, engage in behaviors that could potentially transmit HIV (3).

To date, there is no vaccine or cure for HIV infection, and the only method of halting the AIDS epidemic is by preventing the transmission of HIV through educating the public regarding the risk factors in the transmission of the virus. Health behavior research suggests that individuals who fail to take recommended actions to

improve their health or prevent illness do so because they lack necessary knowledge, attitudes, or skills to behave in accordance with recommendations (4). In addition, there may be environmental barriers such as cost which interfere. Pharmacists are the most respected and accessible health-care providers and can play an important role in slowing the spread of the AIDS virus. Pharmacists in regions of high HIV prevalence such as California have been involved in AIDS prevention programs. However, pharmacists' broad participation in programs to educate the public on prevention of HIV transmission has not been reported. Pharmacists who do not provide care to HIV-infected patients, especially care of a preventive nature, could need additional knowledge and skills or education to change their attitudes or they may need to overcome institutional barriers such as a lack of privacy.

Studies describing pharmacists' lack of knowledge regarding the differences between latex and natural membrane condoms and the importance of the spermicide nonoxynol-9 in the prevention of HIV transmission have also been reported (5,6). The lack of pharmacists' provision of information on condom use has been published (5). Factors affecting the dissemination of HIV-related information by the pharmacist are not known. A number of factors including knowledge base, attitudes, gender, professional practice (age and year of licensure), and type of practice can effect the delivery of health-promoting information, especially prevention of HIV transmission. Year of licensure before and after the first description of AIDS, differences between chain and independent pharmacists in terms of institutional barriers including lack of time and privacy, may be important factors impeding the dissemination of AIDS-related information.

Because there are more women entering the pharmacy profession than previously, some patients may be uncertain about how to discuss the issue with a female pharmacist. In addition, issues related to pharmacists' unwillingness to serve patients with AIDS have been debated, despite very low risk of transmission of the virus from an HIV-infected individual to a pharmacist (7). Information on the attitudes of pharmacists in low HIV prevalence states such as Iowa is lacking. Some pharmacists have been out of school for a long time, and some states (such as Iowa) may not offer an adequate

number of continuing education programs on AIDS. Mandatory Continuing Education Units (CEUs) on AIDS are not required for pharmacy license renewal.

Continuing education programs are needed that address those issues in particular. Programs to educate pharmacists regarding their role in the prevention and treatment of HIV infection have not been conducted. There are three continuing education providers in the state of Iowa (University of Iowa, Drake University, and Iowa Pharmacists' Association). Twenty-eight continuing education programs were organized during the period 1988-91, but of greater than 200 continuing education hours, only nine hours were dedicated to the discussion of HIV-related issues.

Objectives of this study were to assess community pharmacists' knowledge base, attitudes, and potential barriers to providing information regarding safer sex, condom use, and AIDS, and their professional involvement in promoting the prevention of HIV transmission. The information obtained from this study could then be used to organize a continuing education program.

METHODS

An instrument approved by the Committee on the Use of Human Subjects in Research was used to survey the community pharmacists. A list of all registered community pharmacies was obtained from the Iowa Pharmacists' Association. A code identifying each community pharmacy in the state of Iowa was developed. The questionnaire, a cover letter, and a self-addressed stamped envelope were mailed to each community pharmacy in the state. A reminder postcard was mailed to non-responding pharmacies one month after the initial mailing. The survey solicited information on demographics: age, sex, and year of licensure of the pharmacist completing the questionnaire.

Questions on the type of pharmacy, prescription load, and the sale of condoms were also asked. Information on pharmacists' attitudes relative to serving patients with AIDS and providing information about AIDS and sex at home rather than discussing it in public was also solicited. Information on the location of the condom display and the availability of written material on proper use of con-

doms was requested. Information on factors affecting counseling customers on proper condom use, such as heavy work loads, lack of time and privacy, and pharmacists' own discomfort in discussing these issues with patients was also sought. The pharmacists' self-reported knowledge base on the differences between latex and natural membrane condoms and the additional protection offered by the spermicide nonoxynol-9 in preventing the transmission of HIV was assessed. Information on types of issues that pharmacists wanted to have addressed in a continuing education program on AIDS was also requested.

A packet of information was mailed to all pharmacists who responded.¹ Once follow-up reminders had been sent, the identification code was destroyed to maintain confidentiality.

Five-point scales with labeled endpoints assessed attitudes and perceived barriers to counseling. Analysis included frequency distributions for appropriate questions (e.g., distribution by age and sex for different pharmacy settings), Chi-square tests for categorical data, and t-tests for differences between means. A Pearson product-moment correlation confirmed the relationship between age and year of licensure. Tests were only conducted when a significant relationship was hypothesized.

RESULTS

A total of 770 questionnaires was mailed to all community pharmacies in the state of Iowa. Pharmacists from 380 pharmacies responded (50%). The mean age was 43 years (range: 22-73) and 308 (80%) of responding pharmacists were males. The percentage of registered active female pharmacists in the state of Iowa is 35% (8).

1. The packet of information mailed to each responding pharmacy contained two signs that read: "A Condom Can Save Your Life: Ask Your Pharmacist For Information on Proper Use of Condoms and AIDS," and "Caution: Natural Membrane Condoms May Not Protect You Against Sexually Transmitted Diseases and AIDS." A trifold handout on how to choose and use condoms, which could be placed by the condom display, and a master to reproduce these handouts inexpensively were also included in the packet. The packet also contained a list of AIDS resources in the state of Iowa and around the country. Home care of HIV-infected individuals was also included.

The majority of respondents (66%) worked in independent pharmacies, 26% worked in chain pharmacies, and 8% worked in "other" types of pharmacies (department stores, drugs only, or grocery stores) (Table 1). The median year of licensure was 1974. The correlation between age and year of licensure was -0.97 . The non-responding pharmacies totaled 386 (59% and 41% were independent and chain pharmacies, respectively). Male pharmacists ($n = 302$) were more likely to work in independent pharmacies (72%) than chain pharmacies (22%) and about 6% checked the "other" category. Approximately equal numbers of females ($n = 78$) worked in independent (45%) and chain (42%) pharmacies, and about ten female pharmacists (13%) worked for pharmacies in the other settings.

An average of 3,546 (range: 100-100,000) customers were served and 2,500 (range: 15-35,000) prescriptions were filled each month. Twenty-one percent of the pharmacists served HIV-infected individuals and were more likely to attend a continuing education program about AIDS than those who did not serve these individuals (Chi square = 7.8, $p < 0.05$).

Ninety-four percent of pharmacies stocked condoms; all stocked latex condoms and 65% stocked natural membrane condoms. An average of 23 (range: 1-360) boxes of condoms were sold each month. A median of 2% of all condoms sold were made from natural membrane. Fifty percent had a condom display by the pharmacists' counter or window, 8% had it by the check-out counter, and 42% had displays in various sections within the store (17% in feminine hygiene, 16% in the men's fragrance department, 6% by the family planning center, and 3% had more than one location). Other than the use of displays, over 93% of the pharmacies had not done anything to promote the sale of condoms in the recent past. Eighty-one percent of the pharmacists were personally involved in the sale of condoms to predominantly male customers. The majority of pharmacists did not offer unsolicited information regarding condoms (73%) or counsel patients on condom use (61%), and only 4% provided any written information by the condom display (Table 2).

Though 85% of the pharmacists felt comfortable providing information on AIDS and condom use, only 72% felt that they had adequate knowledge on the issue. Self-reported knowledge on the differences between latex and natural membrane condoms was

TABLE 1. Demographics: Age and Sex Distribution of Pharmacists and the Type of Pharmacies

Age (years)	Independents		Chains		Other*		Total
	Males	Females	Males	Females	Males	Females	
22-29	8	11	8	16	1	4	48
30-39	49	15	23	16	7	4	114
40-49	81	6	27	1	4	2	121
50-59	48	3	6	0	3	0	60
60 +	32	0	0	0	3	0	37
Total	218	35	66	33	18	10	380

* Department, drugs only, grocery, etc.

TABLE 2. Pharmacists' Counseling and Providing Written Information Regarding Condom Use to Patients (n = 385)*

	Yes (%)	No (%)	Sometimes (%)
Do your customers seek information regarding condoms?	1	54	45
Do you offer unsolicited information regarding condom use?	6	73	22
Do you counsel on proper use of condoms?	6	61	33
Do you provide written information on proper use of condoms?	4	96	--

*Missing data ranged from n = 3 to n = 14

60%, while knowledge about the additional protection offered by nonoxynol-9 was 69% (Table 3). There were no differences in knowledge base between male and female pharmacists (Student t-test, $p > 0.05$). More female pharmacists felt that privacy and self-discomfort were significant barriers to counseling patients on proper use of condoms. Most of the pharmacists believed that they could play an important role in halting the AIDS epidemic by educating and counseling the public. However, only 38% had formal training in counseling patients on any issue. Sixty-four percent of the pharmacists had been invited to give talks in their communities on various topics, and 56% of those pharmacists would be willing to discuss condoms at such talks.

The majority of pharmacists felt that issues on sex and AIDS need to be addressed by health-care professionals (Table 4). Approximately 12% of pharmacists strongly agreed, agreed, or were neutral that pharmacists need not serve patients with AIDS (Table 4). Female pharmacists were less likely to agree with the question that pharmacists need not serve patients with AIDS.

Pharmacists reported a lack of time, privacy, and customer interest in discussing condoms with a pharmacist as significant barriers to counseling patients about condoms (Table 5). Chain pharmacists were more likely to report lack of time (Student's t-test = 5.1, $p < 0.01$) and privacy (Student t-test, $t = 4.9$, $p < 0.01$) as significant barriers to counseling patients on proper condom use than the pharmacists that worked in an independent or other settings. Lack of information and discomfort in discussing the problem were not perceived as significant barriers.

Pharmacists licensed before the first description of AIDS as a clinical syndrome (i.e., before 1981) were less likely to believe they had adequate knowledge about AIDS in general, about natural membrane condoms, and about the protection offered by nonoxynol-9. They were also less likely to agree with the statement that pharmacists need not serve patients with AIDS (Student's t-test, $p < 0.01$) (Table 4).

Specific HIV-related issues that pharmacists wished to have addressed in a continuing education program included the following most-requested topics: HIV disease process, agents used to manage HIV infections and related conditions, sex education, and counseling.

TABLE 3. Pharmacists' Self-Reported Knowledge Base and Comfort Level in Providing Information About Safer Sex, Condoms, and AIDS (n = 385)*

	<u>% Yes</u>	<u>% No</u>
1. Have adequate knowledge about AIDS	72	28
Have adequate knowledge regarding the proper use of condoms	93	7
Have adequate knowledge about the importance of condoms in AIDS prevention	94	6
Have adequate knowledge about potential risks of natural membrane condoms	60	40
Have adequate knowledge about the protection offered by spermicide nonoxynol-9	69	31
2. Feel comfortable providing AIDS information	85	15
Feel comfortable talking about sexually transmitted diseases	93	7
Feel comfortable talking about sex	89	11

* Missing data ranged from n = 3 to n = 14

TABLE 4. Pharmacists' Attitudes and Perceptions Regarding Counseling on Safer Sex, Condoms, and AIDS

	Strongly Agree 1	2	3	4	Strongly Disagree 5	Mean
Pharmacists can play an important role in the AIDS epidemic. (%)	28	42	26	3	1	2.1
Pharmacists need not serve patients with AIDS. (%)	2	1	9	24	64	4.5
Information on AIDS should be discussed at home and not in public. (%)	1	2	9	25	63	4.5
Information on sex should be discussed at home and not in public. (%)	2	4	15	30	49	4.2
Patients are not interested in discussing condoms with pharmacists. (%)	7	28	44	15	6	2.9

TABLE 5. Perceived Barriers to Counseling on Safer Sex, Condoms, and AIDS

	A very significant barrier				Not a significant barrier	Mean
	1	2	3	4	5	
No privacy	33	35	14	11	6	2.2
No time	9	24	33	22	12	3.0
Own discomfort at discussing	3	5	16	33	43	4.1
Own lack of information	1	8	17	36	38	4.0

TABLE 6. Differences in Perceived Knowledge and Attitudes Between Pharmacists Licensed in 1981 or Before and Those Licensed After 1980

	Licensed Before 1981 (n = 297)	Licensed 1981 or Later (n = 88)	P Value
Pharmacists need not serve patients with AIDS	4.4	4.6 ^a	< 0.01
Felt had adequate knowledge about AIDS (% yes)	69%	81% ^b	< 0.05
Had adequate knowledge regarding potential risks of natural membrane condoms	57%	69% ^b	< 0.05
Had adequate knowledge regarding protection offered by spermicide	65%	84% ^b	< 0.01

a = T-test

b = Chi-square

CONCLUSIONS AND DISCUSSION

The limitations of the survey include self-reporting of the information and possible self-selection by those interested in knowing more about AIDS and related issues. The data may not be representative of all community pharmacies in the state of Iowa since the pharmacists working in chains were probably under-represented. However, the data obtained provided important information.

Female pharmacists reported being comfortable providing information on safer sex, condoms, and AIDS; however, we do not know whether male customers will be willing to discuss these issues with a female pharmacist. Since condoms are predominantly marketed to and bought by males, the changing gender distribution of the pharmacy profession may have implications concerning the interaction between pharmacists and condom customers. The public needs to be educated about the professional training of all pharmacists and reminded that all conversation with a pharmacist, male or female, will be handled in a professional and confidential manner.

Though the majority of pharmacists were involved in the sale of condoms or had condom displays by the pharmacy counter (or window), pharmacists rarely counseled patients on proper use of condoms. Many pharmacists assumed that customers were not interested in discussing condoms with their pharmacists and therefore only 28% provided unsolicited information. Few ($n = 15$) provided any written information by the display on proper selection and use of condoms. However, the pharmacists were willing to post signs that indicated that pharmacists were available to counsel patients on proper use of condoms.

Pharmacists need to learn more about the proper selection and use of condoms. In addition, pharmacists need to be knowledgeable about all aspects of AIDS including AIDS education and drug therapy. The lay press and media are not adequate sources of information for health professionals. Better organized continuing education programs to address a variety of AIDS-related issues should be conducted. Like many other state boards of pharmacy, the Iowa Board of Pharmacy should consider mandatory CEUs on AIDS and related issues.

Chain pharmacists reported a lack of time and privacy as signifi-

cant barriers to counseling patients on proper use of condoms. This was expected as chain pharmacists are more likely to have a higher prescription load and the standardized design of some of the chain pharmacies may not be conducive to counseling patients privately.

While pharmacists licensed before 1981 prior to the recognition of the AIDS epidemic were more likely to agree with the statement that pharmacists need not serve HIV-infected individuals, the actual difference between the groups is small. The issue of pharmacists not serving patients with AIDS is important. It could be argued that these pharmacists had been educated in a different era. However, a small percentage of current pharmacy students at the University of Iowa also agreed with the issue that pharmacists need not serve patients with AIDS (3). Pharmacists as health-care professionals have a duty to all patients. It is important that continuing education programs and curricula in pharmacy schools be organized to address this issue.

Many pharmacists were interested in learning about AIDS and most of them said they would be willing to attend a continuing education program that addressed issues on AIDS. As a result of this survey, a one-day continuing education program was organized at the University of Iowa. The program consisted of lectures on HIV epidemiology, management of HIV infection and related conditions, counseling HIV-infected patients, and the role of pharmacists in slowing the AIDS epidemic.

The mechanism by which pharmacists can get involved is by educating people on condom use, spermicides, and providing general information about AIDS. Pharmacists (31-40%) reported deficiencies in these areas. This result plus perceived customer lack of interest can significantly hamper pharmacists' potential contribution to this cause. However, a number of pharmacists reported being involved in community education and would be willing to discuss AIDS at those presentations. The willingness, accessibility, and public's acceptance of pharmacists put pharmacists in an ideal position to educate the community about safer sex, condoms, and AIDS. Education of sexually active individuals on safer sex practices may reduce the risks of sexually transmitted diseases including HIV and pharmacists are in an ideal position to make an impact on reducing the spread of the AIDS epidemic.

REFERENCES

1. Kaposi's sarcoma and pneumocystis pneumonia among homosexual men—New York City and California. *Morb Mortal Wkly Rep* 1981; 30(25):305-8.
2. HIV/AIDS surveillance report. Washington, DC: U.S. Department of Health and Human Services. February 1992.
3. Noormohamed SE, Ferguson K, Baghaie A. Risk taking behaviors and attitudes of students in colleges of pharmacy in rural and urban settings. *Pharmacotherapy* 1992; 12:258 [abstract 98].
4. Janz NK, Becker MH. The health belief model: A decade later. *Health Educ Q* 1984; 11(1):1-47.
5. Gebhart F. Pharmacists fail condom quiz, other AIDS prevention questions. *Drug Top* 1992; 136(March 9):14-16.
6. Cleary P, Brandt AM, Gostin LD et al. Pharmacy education about HIV and condoms. *Am J Hosp Pharm* 1990; 80:1395.
7. Manolakis ML. Pharmacists' refusal to serve patients with AIDS. *Am J Hosp Pharm* 1990; 47:151-4.
8. Personal communication, Iowa Board of Pharmacy, 19 May 1992.

APPENDIX

Pharmacist questionnaire:

1. Age _____ Sex _____ Year of licensure _____ (R.Ph.)
2. Type of pharmacy (please circle one).
 a. Independent b. Chain c. Department d. Drugs only
 e. Other (please specify) _____
3. Approximately how many customers are served at the pharmacy in a given month? _____
4. Approximately how many prescriptions are filled at your pharmacy in a given month? _____
5. Are human immunodeficiency virus infected individuals or patients with AIDS served at your pharmacy? Yes _____ No _____ If yes, how many in a given month? _____
6. How close are you to the nearest large hospital (≥ 100 beds)?
 _____ miles
7. Do you stock condoms? Yes _____ No _____
If no please skip to question 21
8. If yes, what type do you stock? Latex Yes _____ No _____ Natural membrane Yes _____ No _____
9. Approximately what percentage of total condoms are sold at the pharmacy are natural membrane? _____ %

10. Approximately how many boxes (@ 12) of condoms are sold in a given month? _____
11. Please describe where your condom display is located:
12. Are you personally involved in the sale of condoms? **Yes**___ **No**___
13. Customers of condoms are predominantly **Males**___ **Females**___
14. Has your pharmacy done anything to promote the sale of condoms recently? **Yes**___ **No**___ If yes, please describe (Please use the back of this page if needed.)
15. Do your customers generally seek information regarding condom use? **Yes**___ **No**___ **Sometimes**___ Please estimate the % that seek information. _____
16. Do you offer unsolicited information regarding condom use? **Yes**___ **No**___ **Sometimes**___ Please describe. (Please use the back of this page if needed.)
17. Do you counsel on proper use of condoms? **Yes**___ **No**___ **Sometimes**___
If yes, approximately how many times in a given month? _____
18. Do you provide written information on the proper use of condoms? **Yes**___ **No**___ (If yes, please attach)
19. Do you think your store owner/manager would allow you to provide written information on condom use by the condom display for customers to pick up? **Yes**___ **No**___
20. Do you think your store owner/manager would allow you to put up a sign by the condom display saying, "Ask your pharmacists about proper use of condoms"? **Yes**___ **No**___
21. Do you or would you:
 - a. Have adequate knowledge about AIDS. **Yes**___ **No**___
 - b. Feel comfortable providing AIDS information. **Yes**___ **No**___
 - c. Feel comfortable providing information about sexually transmitted diseases. **Yes**___ **No**___
 - d. Feel comfortable talking about sex. **Yes**___ **No**___
 - e. Have adequate knowledge regarding the proper use of condoms. **Yes**___ **No**___
 - f. Have adequate knowledge about the importance of condoms in AIDS prevention. **Yes**___ **No**___
 - g. Have adequate knowledge about potential risks of natural membrane condoms. **Yes**___ **No**___
 - h. Have adequate knowledge about the protection offered by a spermicide nonoxynol-9. **Yes**___ **No**___

	Strongly agree			Strongly disagree	
22a. Pharmacists can play an important role in prevention of AIDS.	1	2	3	4	5
22b. Pharmacists need not serve patients with AIDS.	1	2	3	4	5
22c. Information on AIDS should be provided at home and not discussed in public.	1	2	3	4	5
22d. Information on sex should be provided at home and not discussed in public	1	2	3	4	5
22e. Patients are not interested in discussing condoms with pharmacists.	1	2	3	4	5
23. What do you see as the most significant barriers to counseling patients about condom use at your pharmacy?					

	a very significant barrier			not a significant barrier	
a. no privacy	1	2	3	4	5
b. no time	1	2	3	4	5
c. own discomfort at discussing	1	2	3	4	5
d. own lack of information	1	2	3	4	5
e. customer uninterested	1	2	3	4	5
f. Other: please specify					
	1	2	3	4	5

(Please use the back of this page if needed.)

25. Have you had any formal training in counseling patients? **Yes** _____ **No** _____
26. Do you ever get invited to give talks in the community? **Yes** _____ **No** _____
27. Would you be willing to discuss condoms at such talks? **Yes** _____ **No** _____
28. Are you interested in learning more about AIDS? **Yes** _____ **No** _____
Not sure _____
29. Would be willing to attend a continuing education program about AIDS? **Yes** _____ **No** _____
Not sure _____
31. What specific issues about AIDS or AIDS prevention (e.g., disease process, medications, counseling on AIDS, condom use, sex education) would you like to have addressed in a continuing education program?

Please use the back of this page if needed.
Thank you.