AIDS information needs: conceptual and content analyses of questions asked of AIDS information hotlines

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Abstract

Dissemination of accurate information about HIV is an essential element of national AIDS prevention strategies and AIDS telephone hotlines serve a vital function in providing such information. In this study, questions asked of two AIDS information hotlines were collected and examined to determine the AIDS information needs of the general public. Questions asked of local AIDS lines in Houston and Milwaukee ($N = 1611$) were independently classified into 30 content areas, with two independent raters achieving 94% agreement. The content areas were organized for analysis into 11 broader information domains. Questions about HIV antibody testing were the most frequently asked (27%), followed by questions about sexual transmission of HIV (16%), HIV-related symptoms (16%) and situations that do not confer risk for HIV infection (14%). Content analyses suggested that individuals were motivated to call hotlines by fears of contracting HIV from actual risk behaviors or to dismiss concerns about contracting HIV through casual modes. Many individuals had information needs related to their own personal experiences that could not be addressed through media campaigns or other means of mass public health education. Results suggest that HIV information dissemination to the public through hotlines and other means of direct health education serves both preventive and destigmatizing functions.

Introduction

The HIV epidemic in the US has resulted in over 500,000 persons with AIDS, of which more than half have died (CDC, 1995). In the absence of a preventive vaccine or cure, education and prevention offers the greatest hope for curtailting the HIV epidemic. Education campaigns are essential to HIV prevention activities outlined by the goals of Healthy People 2000 (USDHHS, 1994). In fact, a national commitment to achieving the goals of HIV/AIDS education has resulted in nearly universal recognition of the AIDS epidemic and awareness of how HIV is transmitted.

In addition to the goals of preventing the spread of HIV, information campaigns influence attitudes, perceptions, social policies and interpersonal interactions with HIV-infected persons (Kroger, 1991). Following the initial agenda of assuring that every individual knows how HIV is and is not transmitted (CDC, 1988; Kroger, 1991), priority was given to public health education to relieve anxieties caused by the unknowns of AIDS. Beliefs that HIV can be casually transmitted lead to unfounded fears of people living with HIV/AIDS and therefore fuel AIDS stigmatization. Social stigmas, discrimination and prejudice stem from misinformation, and constitute an important dimension of the HIV epidemic (Herek, 1990; Herek and Capitanio, 1993).

The goals of AIDS education have focused on both preventing new HIV infections and changing public opinions about AIDS. National AIDS education strategies appear to have been effective in achieving some of these goals. An analysis of the National Health Interview Survey showed that the
majority of people in the US have obtained a basic understanding of how HIV is transmitted (LeBlanc, 1993; Sweat and Levin, 1995). Still, there is evidence of gaps in AIDS-related knowledge. A sizable number of people in Sweat and Levin's analysis did not know that AIDS is caused by a virus (37%), that HIV is sexually transmitted (18%) and that AIDS causes death (15%). It is also apparent that AIDS information has not reached all segments of the American public. Ethnic minorities are often less well informed about most aspects of AIDS than Whites (Thomas et al., 1989; Arrufo et al., 1991; Sweat and Levin, 1995). These studies provide a reasonable estimate of misinformation and misunderstanding among study participants, but because initial questions are posed by researchers, they cannot inform health educators or public health officials of the general public’s information needs. In other words, responses to AIDS knowledge surveys do not necessarily represent the questions the public itself has about AIDS.

In the present study, we examined questions asked by callers to AIDS information hotlines. AIDS information hotlines are operated by the Centers for Disease and Control and Prevention (National AIDS Hotline), state health departments, and local community organizations. The National AIDS Hotline answers more than 3000 questions each day and received nearly 9 million calls requesting information between 1987 and 1994 (Scott and Vangsnes, 1995). Thus, AIDS information hotlines serve a vital function in meeting public AIDS information needs (Kalichman, 1996). In the present study we collected questions received by two AIDS information hotlines administered by local AIDS service organizations. The questions were treated as data in a qualitative research framework where we: (1) categorized the questions into conceptually ascertained content domains and (2) performed thematic analyses of question content. We conceptualized the structure of AIDS knowledge in accordance with the US Public Health Service (CDC, 1993). Following our structural analysis, we analyzed the content of questions to characterize the information requested by hotline callers.

Methods

Data collection procedures

To assess information requested of AIDS hotlines, we collaborated with two AIDS hotlines delivered by local AIDS service organizations: the Houston AIDS Foundation in Houston, Texas and the Wisconsin AIDS Resource Center in Milwaukee, Wisconsin. Houston and Milwaukee were selected as sites for the study because both cities have increasing incidence rates of HIV infections and because both cities are in the center of the US, providing a representation of the middle section of the country. Although the majority of AIDS cases in the US have occurred on the east and west coasts, the information needs of people outside of AIDS epicenters have been understudied. Both hotlines have full-time phone coverage and receive hundreds of calls per week. At both sites, trained hotline staff and volunteers respond to questions using manual and automated information search systems that are consistent with CDC guidelines, and each has extensive referral networks. We chose to examine calls received by two local hotlines, as opposed to a national hotline, so that we could characterize the calls within well-defined geographical regions and conduct comparisons between two distinct locations.

Following our initial meetings with professional and volunteer staff, hotline workers developed logsheets to provide a written record of each call received. Workers were instructed to provide services in their usual manner and to write the question(s) on logsheets immediately following the call, as close to verbatim as possible. Although this procedure relied on immediate recall, it provided a close approximation of questions asked. Tape-recording calls, monitoring calls by a third person or asking phone workers to write questions as they were on the phone would have disrupted the delivery of hotline services and were not considered feasible. Hotline staff asked callers their sex and ethnicity as a part of their usual programmatic record keeping. The Milwaukee hotline also asked callers their age and sexual orienta-
tion as a matter of their usual procedures. These data were made available for this study.

Data organization strategy and structural analysis

The first step in our analysis involved organizing the hotline questions into a structure of AIDS knowledge. Two sources informed our organizational strategy. As a first level of organization of AIDS-related knowledge, we used the results of an empirical study that factor analyzed 26 AIDS-related knowledge test items responded to by over 71,000 individuals living in the US (Sweat and Levin, 1995). This study identified four principle content areas: transmission mechanisms, emphasizing casual contacts; standard questions, which included questions about sexual transmission, HIV disease processes and risk groups; definitions of AIDS, including questions about aspects of HIV disease, how HIV affects the body, and the differences between HIV and AIDS; and technical questions regarding whether HIV causes heart disease and infects the brain. Thus, these four factors demonstrated distinctions between transmission and disease process-related knowledge.

In a second approach, we used the content of the Surgeon General's Report to the American Public on HIV Infection and AIDS available from the US Public Health Service (CDC, 1993). The Surgeon General's Report consists of the following areas of AIDS-related information: HIV antibody testing; sexual transmission; non-sexual transmission; ways that HIV is not spread; disease symptoms and processes; condoms and other protective barriers; safer sexual behaviors; facts about HIV and AIDS; and statistical information about the HIV epidemic. These nine information areas guided our initial conceptualization of an AIDS-related knowledge structure. We also included information about living with HIV infection, specifically issues surrounding disclosure of HIV antibody status and HIV-related services, as additional content domains. Finally, we distilled the information of these 11 domains into 30 detailed areas. Figure 1 presents our hierarchical model of AIDS knowledge within which the AIDS hotline questions were sorted.

Data analysis procedures

We conducted descriptive analyses of all questions for both hotlines. Because individuals may have placed more than one call or asked more than one questions per call, we treated questions rather than calls or callers as the unit of analysis. Using contingency table analyses, we tested associations between the information content areas, geographical regions, caller gender, ethnicity and sexual orientation (available from Milwaukee only). Caller age (available from Milwaukee) was examined by dividing the sample into younger and older age groups based on the median age (29 years), and conducting contingency table analyses using \( \chi^2 \) tests to detect significant associations.

Questions and available information about callers were transferred from log-sheets to index cards which were subsequently sorted into content areas. Two researchers with expertise in HIV prevention education independently sorted the questions into the 30 content areas. The reliability of classifying questions between the two independent raters achieved 94% agreement.

To examine the content of questions asked of AIDS hotlines, we conducted qualitative analyses within each knowledge domain. Using a qualitative data analytic framework (Patton, 1990), we examined the questions for themes and concepts that characterized each of the 11 AIDS knowledge domains.

Results

The total number of questions received by the Milwaukee AIDS line was 878 and Houston received 733 questions over a 4-month observation period (January through March, 1994). Fifty-five percent of questions were asked by men, 45% by women; and 75% were asked by Whites, 25% by ethnic minorities. Additional data collected by the Milwaukee AIDS line showed that 82% of callers from that city were heterosexual, 8% bisexual and 10% homosexual. The mean age of callers in Milwaukee was 31.2 (SD = 10.4, median = 29, range = 11–69, see Table I).
Fig. 1. Hierarchical framework of AIDS knowledge. Three knowledge concepts (HIV transmission, disease processes and living with HIV) give rise to 11 information domains within which specific information areas occur which in turn characterize most of the questions received by AIDS information hotlines.

| Table I. Characteristics of callers to the Houston and Milwaukee AIDS hotlines |
|------------------|------------------|------------------|------------------|
| Caller characteristic | Houston | Milwaukee | Houston | Milwaukee |
| | N | % | N | % |
| Sex | | | | |
| male | 368 | 47 | 408 | 56 |
| female | 321 | 53 | 317 | 44 |
| Ethnicity | | | | |
| White | 498 | 76 | 523 | 74 |
| minority | 157 | 24 | 184 | 26 |
| Sexual orientation | | | | |
| heterosexual | 519 | 82 | | |
| homosexual | 48 | 8 | | |
| bisexual | 64 | 10 | | |
| Mean (SD) age | 31.2 (10.4) | | | |

Analyses showed that 76% of callers in Houston were White as were 74% in Milwaukee, a non-significant difference, $\chi^2$ (d.f. = 1, $N = 1358$) = 0.66, $P > 0.1$. Similarly, the difference between AIDS lines in number of male and female callers was not significant, $\chi^2$ (d.f. = 1, $N = 1414$) = 1.17, $P = 0.1$. The proportions of demographic characteristics among callers in the present study are similar to those of callers to the National AIDS Hotline, where 73% of callers are White and 52% are women.

Frequencies of calls within information domains

The largest category of questions received by both hotlines concerned HIV antibody testing, accounting for 27% of all questions. Within this domain, the most frequent questions concerned where a person could go for HIV antibody testing, and questions that made reference to the window period between transmission and development of HIV antibodies. The second most frequent questions, 16% of the total, asked about sexual transmission of HIV, with oral–genital contact raising the most inquiries within this domain. Also, symptoms and disease processes prompted 16% of the questions. Table II presents the frequencies and percentages of questions within each information area and within the broader content domains for Houston and Milwaukee. Contingency table analyses did not find an association between the two locations and caller gender or ethnicity. However, Houston and Milwaukee did differ with respect to proportions of questions stemming from the knowledge domains, $\chi^2$ (d.f. = 11, $N = 1611$) = 60.24, $P < 0.001$. The Milwaukee hotline received more questions about HIV antibody testing (32% compared to 21% for Houston), and the Houston hotline was more frequently asked about services for people living with HIV and AIDS (12% compared to 6% for Milwaukee). There were additional, but
Table II. Percentage of calls received within specific content areas and AIDS knowledge domains for the Houston and Milwaukee AIDS hotlines

<table>
<thead>
<tr>
<th>Information content area</th>
<th>Houston</th>
<th>Milwaukee</th>
<th>Total</th>
</tr>
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| HIV antibody testing                      | 159     | 283       | 442   | 27%
| motivated by behavior                    | 7       | 8         | 15    |
| motivated by symptoms                    | 4       | 2         | 6     |
| motivated by other factors               | 5       | 6         | 11    |
| testing sites                            | 58      | 138       | 196   |
| testing procedures                       | 20      | 38        | 58    |
| testing window period                    | 51      | 83        | 134   |
| interpreting test results                | 14      | 8         | 22    |
| Sexual transmission                      | 128     | 130       | 258   | 16%
| vaginal intercourse                      | 27      | 23        | 50    |
| anal intercourse                         | 10      | 8         | 18    |
| oral-genital contacts                    | 63      | 84        | 147   |
| masturbation and touching                | 17      | 8         | 25    |
| other sexual behaviors                   | 11      | 7         | 18    |
| Non-sexual transmission                  | 16      | 32        | 48    | 3%
| needles, sticks and injections           | 4       | 8         | 12    |
| sharp instruments                        | 1       | 8         | 9     |
| perinatal transmission                   | 4       | 5         | 9     |
| breast-feeding                          | 1       | 2         | 3     |
| blood and tissue transfusion             | 6       | 9         | 15    |
| Non-risky situations                     | 118     | 106       | 224   | 14%
| kissing and saliva                       | 36      | 32        |       |
| casual contacts                          | 82      | 74        |       |
| Condoms and other barriers               | 27      | 29        | 56    | 3%
| Safer sex practices                      | 16      | 28        | 44    | 2%
| Symptomatic and disease                  | 135     | 124       | 259   | 16%
| Epidemiological                          | 13      | 32        | 45    | 2%
| affected groups                          | 27      | 21        | 48    |
| case rates                               | 4       | 11        | 15    |
| Services for affected persons            | 93      | 56        | 149   | 9%
| legal services                           | 27      | 22        | 49    |
| caretaking services                      | 53      | 27        | 80    |
| treatment                                | 13      | 7         | 20    |
| Disclosure of HIV status                 | 5       | 1         | 13    | 1%
| General facts about HIV                  | 10      | 18        | 28    | 1%
| Not classified                            | 13      | 32        | 45    | 2%
| Total                                    | 733     | 878       | 1611  |

Smaller differences between hotlines also noted (see Table II).

Results showed that question content areas were associated with caller gender, $\chi^2$ (d.f. = 11, $N = 1416$) = 103.16, $P < 0.001$. Men and women asked similar numbers of questions from nine of the content areas, but women (33%) asked more questions about HIV antibody testing than men (23%) and men (23%) asked more questions about modes of sexual HIV transmission than did women (8%). Information content areas were also associated with ethnicity, $\chi^2$ (d.f. = 11, $N = 1360$) = 31.13, $P < 0.001$. White callers (31%) asked about HIV antibody testing more frequently than minorities (21%), whereas ethnic minorities (24%) were more likely to ask about HIV-related
symptoms and disease processes than were Whites (14%). The remaining content areas were proportionally distributed across ethnic groups. Finally, analyses did not detect associations between caller sexual orientation or age and question content areas.

**Content analysis of AIDS questions**

Questions within AIDS information content domains were examined for conceptual themes. Below are brief descriptions of the themes that characterized each domain. As would be expected, the content domains reflected the most frequently asked questions within each of the more specific content areas. Examples of questions within domains are provided verbatim as they were recorded by hotline workers.

**HIV antibody testing**

This category accounted for 27% of the total sample of questions. These questions were dominated by concerns that individuals had regarding getting tested, usually based on perceptions that they were experiencing 'symptoms' or that their past behavior meant they could be infected. For example, one caller asked 'If I have a sore throat, should I get tested for AIDS?'. One testing question motivated by past behavior was 'If I had unprotected sex with a prostitute, do I need to get tested?'. Many questions also concerned where a person could get tested, including locations of confidential and anonymous test sites. Questions concerning the window period between transmission and development of HIV antibodies as well as questions related to the reliability of HIV antibody tests were also common. Examples of these questions include 'How long after you think you’ve been infected should you wait to get tested?', 'Can somebody test negative for AIDS and still have it?', 'How long do I have to wait to be tested to be sure I am not infected with HIV?', 'I had a risky sexual experience in February this year. Has enough time elapsed for an HIV test?' and 'If my partner and I get tested together and the tests are negative, can we be sure that we won’t get AIDS?'. Other common questions referred to the testing procedure and test reliability, such as 'What does it mean if you have a test result that is positive on the ELISA test but negative on the Western Blot?'. Finally, callers often expressed confusion about the meaning of HIV test results, particularly the interpretation of negative, positive and inconclusive results, such as 'What does an HIV negative test result mean?', 'What is meant by a false positive test?' and 'Does non-reactive mean negative with regard to an HIV test?'.

**Sexual transmission**

This category accounted for 16% of questions and included requests for information about the potential risks resulting from anal intercourse, vaginal intercourse, oral–genital contacts and masturbation/sexual touching. Many of the questions in this category appeared motivated by recent sexual encounters in which the caller was unsure about their own personal risk of infection. Common questions in this category included 'Could I get it from sleeping with a woman just one time?', 'How do people get infected from oral sex?', 'I had oral sex with a man last night and I wanted to know if I could have been infected?', 'Is there a 100% chance of getting AIDS if you have unprotected sex with someone who is HIV positive?' and 'Can I get infected if I have anal sex and I am the one who inserts into my partner?'. Some callers had questions about the risk for HIV transmission during less frequent sexual behaviors, such as 'Can a person get AIDS if someone ejaculates on their skin?' and 'Can you get AIDS from oral–anal sex?', as well as certain types of sexual acts with specific types of partners, such as a caller who asked 'Can I get AIDS from having oral sex with a prostitute?'.

**Non-sexual transmission**

This category included non-sexual means of contracting HIV and accounted for 3% of the questions. These questions included all types of possible HIV transmissions that did not involve sexual practices including needle sticks, blood transfusions, perinatal transmission and breast-feeding. Examples include 'Can I get AIDS if I was scratched by a
hypodermic needle?’, ‘I have to have an operation and will need to have blood transfused. How safe is the blood supply?’, ‘How do babies get HIV from their mother?’ and ‘Can I still nurse my baby if I am HIV positive?’. These questions also included risk from other contacts with human blood, such as ‘My brother is HIV positive and I accidentally cut myself on his razor. Could I be infected?’ and ‘Can I get HIV if I come in contact with dried blood?’.

Non-risky situations
Casual contacts and contacts with saliva, including kissing, were asked about in 14% of the questions. A small number of questions in this group referred to HIV transmission through contact with inanimate objects, insects or merely being near a person who has HIV. Examples of questions regarding casual contacts include ‘I cut my finger at a health club on the equipment. Do I need to be worried about getting AIDS?’, ‘Can you get AIDS from a restaurant employee, like a cook or server?’ and ‘A relative who has AIDS is coming to visit me. Do I need to take precautions to protect my children?’ and ‘Could a child get AIDS from a caretaker?’ and ‘Can HIV be transmitted through tears?’. Many of the question in this domain also asked whether a person is at risk for HIV infection through kissing. Additional questions asked about transmission through other contacts with saliva, including sharing cups, glasses, cigarettes or pipes with a person who has HIV. Concern over contact with saliva was illustrated well by the question ‘Can I get HIV from someone spitting on me?’.

Condoms and other protective barriers
The condoms category accounted for 3% of the total sample and included questions that referred to the use of either male or female condoms, as well as latex gloves, dental dams and virucides for protection against HIV. Many of these questions concerned the efficacy of condoms in preventing HIV transmission or referred to the degree of risk involved with specific sexual acts while using condoms. Examples of these questions include ‘What is the right way to use condoms?’, ‘How safe are condoms?’, ‘What is the chance of getting AIDS if a condom is always used?’ and ‘Can I get AIDS from performing oral sex on a woman even if I use condoms?’. Some questions were assessing the risk of transmission if a condom broke during intercourse, such as ‘If a condom breaks can my girlfriend get AIDS?’ Questions concerning other barriers were less common but included ‘Should I wear a latex glove if I masturbate my partner?’ and ‘What are dental dams used for?’.

Safer sex practices
A small number of callers asked questions regarding alternative means of self-protection from sexually transmitted HIV infection. We included all such questions in this category that did not ask about condom use or other barriers. Examples include ‘Can you get AIDS from foreplay?’, ‘Is it safe to masturbate a sex partner?’, ‘Other than using condoms, how else can HIV be prevented during sex?’ and ‘What is the safe thing to do during sex if we do not have a condom?’.

Symptoms and disease processes
This category accounted for 16% of the questions received. Most commonly, questions addressed potential symptoms of HIV, such as flu-like symptoms after a sexual encounter. Many of the questions in this category reflected a fairly high level of understanding of AIDS and its symptomatology, while others seemed significantly less informed. For example, several callers asked questions concerning whether headaches, diarrhea, sores, rashes and other physical problems could be symptoms of HIV infection. It was also common for callers to ask ‘What are the first symptoms of HIV infection?’ and ‘What are the earliest signs of AIDS?’. These questions therefore reflected concerns about the possibility of being infected with HIV as well as signs of advancing HIV disease.

Epidemiological
Only 2% of the questions asked for statistical information about HIV and AIDS. Questions concerned groups of people affected by the epidemic...
and rates of AIDS among certain groups, such as 'Are homosexuals really at risk for HIV?', 'What is the percentage of babies born to mothers who have HIV actually being HIV positive themselves?' and 'Are lesbians at risk for HIV?'.

Services for affected persons
Nine percent of questions to AIDS hotlines concerned how to access services to assist people living with HIV and AIDS. The majority of legal service inquiries referred to assistance in preparing wills. Questions regarding caretaking were also common, including how to find an HIV-related medical specialist, obtaining dental care and how to receive hospice care. Questions regarding treatments for HIV and AIDS most commonly asked about medication side effects, such as 'What are the side effects of AZT?' and 'Is it normal for someone who is HIV positive and who has been on AZT to begin getting headaches?'.

Disclosure of HIV status
Relatively few questions were related to issues surrounding disclosure of HIV serostatus. Upon inspection, these questions frequently did not have absolute answers and seemed to pose moral dilemmas. Examples include 'How do I tell my family that I have AIDS?', 'What can I do to let someone know that they are having sex with someone I know has AIDS?' and 'If I tested HIV positive, who is required to know?'.

General facts about HIV
This 1% of questions referred to specific characteristics of HIV that were unrelated to symptoms and disease processes. 'How long does HIV live outside the body?' and 'Where did the AIDS virus come from?' were typical questions in this category.

Unclassifiable questions
Two percent of questions were not able to be classified in our scheme of AIDS knowledge. These included questions about whether a person with HIV should receive influenza vaccines, and whether colds and the flu are more serious in a person with AIDS. There were also questions about whether cats and dogs can contract and transmit HIV. In general, there were too few related questions to constitute a new domain and these questions did not fit within the present framework.

Discussion
Our examination of questions posed to AIDS hotlines demonstrated a broad range of requests for AIDS information. Questions that concerned situations that do not confer risk for HIV infection occurred but with considerably less frequency than questions about actual risk-producing situations. The most common questions were motivated by personal risk-related experiences, potential HIV-related symptoms and inquiries about HIV antibody testing. Differences between callers of different genders and ethnicities were also observed with respect to areas of information requested. Differences in rates of questions between groups may, therefore, reflect variations in information reaching different segments of the population. The relative frequencies of questions asked of hotlines and the differences observed between groups of callers can therefore inform efforts to deliver HIV/AIDS information.

Accurate information about HIV transmission and AIDS is a central element of theories of HIV prevention and risk behavior reduction (Fishbein and Middlestadt, 1989; Ajzen, 1991; Fisher and Fisher, 1992; Bandura, 1994). For example, the Health Belief Model posits that information about a disease and one's risk for the disease are necessary precursors to taking preventive action (Rosenstock et al., 1994). In addition, misperceptions and misinformation form the foundation for prejudice and discrimination against people with AIDS (Herek, 1990). However, it is also well accepted that education alone will not change risk-producing practices and will not alter beliefs that produce AIDS stigma. Educating the masses should be viewed as necessary but must be combined with more intensive and targeted efforts for prevention and destigmatization, such as school-based education programs, clinic-based prevention counseling for high-risk individuals and outreach services for hard to reach populations.
The focus of this study was on the initial questions callers asked of hotline workers. However, answers to these questions may not fully represent the extent of the exchange between callers and workers. Hotline workers are trained to probe questions to reach any underlying concerns of the caller (San Francisco AIDS Foundation, 1994). The initial questions asked of AIDS hotlines often provide the first step in seeking help with an HIV/AIDS-related concern. Help is often sought with decisions regarding HIV antibody testing, contemplating behavior changes or seeking medical attention for symptoms. Hotlines therefore provide services to callers that reach beyond answering initial requests for information and can result in assistance with complex decision making (Scott and Vangsnes, 1995). The access and anonymity offered by phone services should therefore be recognized as a vital aspect of HIV education and prevention efforts (Roffman et al., 1997).

The limitations of this study should be considered when interpreting the results. First, our methodology relied on retrospective recall of phone workers following each call. In addition, this methodology resulted in a single question to represent an entire conversation between the caller and worker. Although the procedure used provided the closest possible representation of actual caller questions, it lacked the precision of more intrusive methods. Second, we collected questions from two local hotlines and found differences between regions, genders and ethnicity, in terms of relative proportion of questions from content domains. These results suggest that future research should conduct systematic evaluations of regional information needs and link information requests to a more complete profile of caller characteristics. Finally, the questions studied here represent a sample of calls received during a relatively brief period of time. The potential for historical change in question content should therefore be considered. For example, evaluations of the National AIDS Hotline suggests that questions about HIV antibody testing and oral-genital sexual transmission have increased in recent years while calls about casual HIV transmission have declined (Scott and Vangsnes, 1995). Questions prompted by social events that occurred prior to and following our data collection are also not represented in this study, such as celebrity disclosures of HIV infection (Kalichman, 1994); breakthroughs in the treatment of HIV infection and advances in prevention, such as the use of antiretroviral medications to prevent perinatal HIV transmission. Thus, further studies are needed to collect requests for AIDS information over longer periods of time and over the course of targeted AIDS information campaigns.

**Practice implications**

AIDS education usually includes the domains of information reflected in the general public's questions. However, the specific areas within domains likely vary across programs and may not represent the information needs of local communities. Our study suggests that local AIDS hotline services can be accessed to inform education efforts about community information needs. Hotlines often track questions they receive and the characteristics of callers as part of their program evaluation activities. Meeting with hotline staff and discussing current questions can assist health educators in developing information services that reflect community needs. Education programs are also needed to address the complicated questions about HIV/AIDS, including the window period of time that people should wait between potential exposure to HIV and developing antibodies, and the potential risks of oral-genital contact. AIDS educators can provide basic concepts of HIV risk as well as explain aspects of HIV/AIDS that are confusing and can provide the best possible information to questions that do not yet have definitive answers.

A second area which can apply the present findings is the training of AIDS hotline workers. Training hotline professionals and volunteers includes instruction in methods of providing accurate answers to questions as well attending to the unspoken needs of callers. The most frequent calls, those concerning the HIV window period and oral sex, reflect the anxiety of potentially being at risk for HIV infection. For training purposes, the least frequently asked questions can also be informative.
to hotline trainees. Uncommon questions can challenge workers to address ambiguities and clarify risks associated with unusual circumstances. Specific questions posed to hotlines, such as those examined in the present study, can therefore be integrated into AIDS hotline training experiences.

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