fessional organizations, such as the American Academy of Pediatrics, can serve to enhance the effectiveness of safety education for children. In addition, greater awareness of the educational needs of school children can help to focus community efforts on appropriate issues for public education campaigns. An approach to injury prevention that uses multiple opportunities for education, including the pediatric visit, schools, and the media is the most effective educational strategy to pursue (*19*).

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AIDS Knowledge and Attitudes Among Adults in Vermont

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Synopsis

To design a statewide educational campaign, the Vermont Department of Health attempted to measure knowledge about AIDS among residents of the State. During the period November 1986 through January 1987, the authors conducted a telephone survey of noninstitutionalized residents ages 18 and over.

The results were examined in relation to age and education. The most accurate answers were given by respondents less than 45 years. In terms of educational attainment, respondents with less than a high school education had an average score of 61.4 and those with a college degree averaged 85.0. When the authors examined responses to individual questions, it became apparent that respondents were more knowledgeable about ways the virus could be transmitted than about ways it could not.

A more comprehensive education program must reduce fear. One component of the current AIDS campaign in Vermont is an advertisement that addresses unfounded concern about casual transmission of AIDS.

THE FIRST PRIORITY in any prevention campaign is to disseminate information that enables persons at risk to minimize the likelihood of contracting a disease. An important secondary effort is to minimize fears and behaviors based on fallacious beliefs.

Although a great deal of information about acquired immunodeficiency syndrome (AIDS) has become available, measurement of the effect of this information on general populations has only recently been attempted (*1*). Several studies on specific subpopulations, such as teenagers or health care professionals (*2–4*), have shown wide variations in knowledge levels.

To design a statewide educational campaign, the Vermont Department of Health attempted to measure knowledge about AIDS among residents of the State. We undertook to measure both correct and incorrect beliefs in order to focus the campaign appropriately.

Methods

During the period November 1986 through January 1987, we conducted a random digit telephone survey of noninstitutionalized Vermont residents ages 18 and over. Sample size was calculated to allow estimation of statewide proportions to within 5 percent. At each telephone number we asked to interview the person living in the household with the next birthday.

Respondents were questioned regarding their knowledge about the transmission and prevention of AIDS, as well as attitudes toward those with the virus. Questions addressed known avenues of transmission, such as sexual intercourse and intravenous drug abuse. We also questioned respondents about ways of preventing infection, such as avoiding intravenous drugs or using condoms. We included a number of questions designed to measure misapprehensions, such as the possibility of being infected through sharing of towels or through sharing of eating utensils with an infected person.

Questions were developed by Vermont Department of Health AIDS educators and were extensively pretested. Questions about behavior were specifically excluded to maximize response rate. All questions had three possible answers: yes, no, and don't know. Demographic data (age, sex, and educational level) were also collected.

Analyses included frequency tabulations, analysis of variance, multiple analysis of variance, and multiple comparison testing, and were performed using the Statistical Package for the Social Sciences (*5*). A weighting scheme was used to adjust for the number of eligible respondents at each telephone number and the number of different numbers which could be used to reach the household (*6*).

'More than three-quarters of respondents felt that children with the AIDS virus should be allowed to go to school with other children (77.5 percent) and would send their own child to school with a classmate who had the virus (76.2 percent).'

Results

Approximately 3,800 telephone calls produced 1,193 eligible telephone numbers and 760 eligible respondents, of whom 602 (79 percent) agreed to participate in the survey. The age-sex distribution of respondents was close to the State population, with some oversampling of 30–44-year-old women (23 percent of survey, 15 percent of population) and undersampling of 18–29-year-olds (24 percent of survey, 30 percent of population). The total 18–44 group represented 63 percent of the survey and 60 percent of the population. All tabulations reflect weighting for household size and multiple telephone numbers, unless otherwise specified. Four people had never heard of AIDS and were excluded from further questioning.

Using 31 knowledge questions, we calculated each respondent's percent of correct answers. These scores ranged from 9.7 to 100 percent, with two people (unweighted) correctly answering all questions. The average score was 75.8 percent (95 percent confidence interval (CI) 74.6, 77.1).

The results were examined in relation to age and education (tables 1 and 2). The most accurate answers were given by respondents under 45, with significant differences between this group and those 45 to 64 or 65 and older. A very strong gradient was apparent when we examined results by educational attainment. Those with less than a high school education had an average score of 61.4, while those with a college degree averaged 85.0.

When we examined responses to individual questions, it became apparent that respondents were more knowledgeable about ways in which the virus could be transmitted (positive knowledge) than

Table 1. Average score by age in 1986–87 Vermont AIDS telephone survey

Age	Mean score	95 percent CI	Number
18–29 years	78.6	76.3–80.9	143
30–44 years	78.8	77.1–80.6	235
45–64 years	73.7	71.3–76.3	139
65 years and older	65.2	60.9–69.5	78
Total	75.8	74.6–77.1	595

Table 2. Average score by education level in 1986–87 Vermont AIDS telephone survey

Education	Mean score	95 percent CI	Number
1 to 12 years	61.4	57.2–65.6	74
12 years	70.9	68.9–72.9	222
13–15 years	80.5	78.6–82.5	131
16 or more years	85.0	83.5–86.4	169
Total	75.8	74.6–77.1	595

about ways it could not, such as casual contact, sneezing, coughing, or hot tubs (misapprehensions). A series of multiple analysis of variance tests, using age, education, or sex and percent correct for these two classes of questions showed that in addition to gradients of age and education discussed previously, there was a strong interaction between these terms and scores on the two types of questions.

In general, with increasing age or decreasing education, the decline in percent correct for the positive knowledge questions was less than the decline for the misapprehension questions. In other words, more of the decline in overall score was attributable to increasing fallacious knowledge than to decreasing positive knowledge.

Three questions addressed the issue of AIDS among school children. More than three-quarters of respondents felt that children with the AIDS virus should be allowed to go to school with other children (77.5 percent) and would send their own child to school with a classmate who had the virus (76.2 percent). Almost 40 percent would worry about their child catching the virus.

Although 89.2 percent of respondents believed that one cannot catch AIDS from a coworker, 15 percent of those questioned felt that employers should be allowed to fire workers who have the virus, and nearly half (46.6 percent) felt that coworkers should be allowed to refuse to work near someone with the virus. Eighty-one percent felt that physicians did not have the right to refuse to treat an AIDS patient, while 76.6 percent felt nurses did not have this right.

We asked people where they obtained their information about AIDS. Most reported newspapers (91 percent), and television (90 percent). Thirteen percent mentioned a physician, and 16 percent mentioned the health department.

Discussion

The findings of greatest importance for designing an education program is the very high level of positive knowledge compared to the lower level of knowledge about ways the virus cannot be transmitted. Two questions about transmission through sharing of needles and through male to male sexual contact were most often correctly answered. In contrast, about one-fourth of respondents identified sharing towels, being near someone who sneezes, or sharing eating utensils as modes of transmission.

This disparity between positive and negative knowledge level interacts with the general knowledge level. While knowledge level about needle and sexual transmission decline with increasing age or decreasing educational attainment, the decline in knowledge level is far more severe with the subject of unlikely casual transmission.

This is quite reasonable when we consider where people obtain their information. Until quite recently, articles in newspapers or on television have focused almost exclusively on how the disease is transmitted. In Vermont, there has been little attention given to the extreme unlikelihood of transmission through casual contact.

A more comprehensive education program must, in addition to addressing prevention, reduce fear. This will require inclusion of material about behaviors with infinitesimal risk.

One component of the current Vermont AIDS campaign, based partly on the results of this survey, is an advertisement that addresses unfounded fears about casual transmission of AIDS and the lack of transmission through shared utensils, door knobs, and toilet seats. Public health officials are experienced in advising the public about risks of various harmful agents and how best to reduce these risks. As the results of this survey show, however, there is a need to develop public messages about how the virus is not transmitted.

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Differences in Gay Men's AIDS Risk Knowledge and Behavior Patterns in High and Low AIDS Prevalence Cities

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Synopsis

Several studies have found reductions in acquired immunodeficiency syndrome (AIDS) risk practices among gay men in high AIDS-prevalence cities since the start of the AIDS crisis. Much less is known about risk behavior patterns among gay men in smaller cities, where AIDS cases are less common and the prevalence of human immunodeficiency virus infection is relatively lower.

In the study, men entering gay bars in three cities, one large and two small, completed anonymous surveys of sexual practices and AIDS risk knowledge. Men in high AIDS-prevalence areas were found to have had a greater number of sexual partners, were more knowledgeable about AIDS, were much more likely to engage in low-risk practices (such as mutual masturbation or body rubbing), and had unprotected anal intercourse less frequently than gay men in smaller cities. The most common sexual activity among gay men in the larger city was mutual masturbation, a low-risk practice. The most common sexual activity among gay men in the smaller cities was unprotected anal intercourse.

Increased efforts are needed to educate gay men and to promote risk behavior changes among those living in smaller cities and in communities outside the prominent AIDS epicenters.

CASES of acquired immunodeficiency syndrome (AIDS) continue to increase rapidly, with 270,000 cases of AIDS expected in the United States by 1991 (*1*). Between 1 and 2 million persons in this country are estimated already to be infected with the human immunodeficiency virus (HIV) that causes AIDS (*2*). The World Health Organization projects that 50 to 100 million persons worldwide may be infected with HIV by 1991 (*3*). AIDS prevention efforts must emphasize and promote the adoption of behavior that reduces risk for developing HIV infection and for transmitting the virus to others. Since HIV is most often transmitted during sexual contact, changes in sexual behavior are essential.

HIV infection can be transmitted heterosexually,