PREVENTING AIDS: Knowledge, Attitudes, and Practices

A survey was conducted to assess the attitudes, knowledge, and clinical practices of health care professionals about the prevention of human immunodeficiency virus (HIV) infection. Answers to the survey indicated that more efficient and effective educational methods should be used to update health care practitioners’ knowledge about infection, transmission and prevention of this disease.

The purpose of the 1989 project was to assess the knowledge, attitudes, and practices of nurse managers and other health care professionals in Massachusetts’ Merrimack Valley area about the prevention of AIDS. On the basis of the data, needed educational and support programs can be designed for those involved in the prevention of AIDS and the treatment of individuals with the disease.

A sampling frame was constructed using the Commonwealth of Massachusetts community listing of nursing homes, the American Hospital Association listing of hospitals by community, the telephone yellow pages for independent laboratories, and the mailing list of the Merrimack Valley Area Health Education Center (AHEC) for physicians and dentists.

The study group (N = 300) consisted of two populations. The first one (n = 97) was composed of nursing administrators, laboratory managers, respiratory therapy managers, and x-ray managers employed by the 10 acute care, non-teaching hospitals in the area. Also included were the directors of nursing from all skilled nursing facilities with more

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than 100 beds, as well as laboratory managers from all identified independent laboratories. The second group (N = 203) was a 20% systematically selected sample of individual practitioners, physicians, and dentists on the AHEC list.

These two groups were assumed to have the greatest influence on the prevention of AIDS due to their influence on the practice behavior of those whom they supervised, and the opportunities they had to educate and counsel patients.

All participants were mailed a questionnaire along with a letter that promised confidentiality of the responses and described the purpose of the investigation as being the identification of areas in which additional education programs would be beneficial.

**Questionnaire**

The survey questions were adapted from the Centers for Disease Control (CDC) guidelines and requirements, and National Health Interview Survey data reported in the literature (Arnow, 1989; Dawson, 1988; Lewis, 1987; Reed, 1984). They were designed to assess the knowledge, attitudes, and practices of these health care practitioners. Data also was gathered concerning each participant’s professional background, age, and gender.

Knowledge questions dealt with laboratory tests to diagnose HIV, precautions used in health care settings, and measures of protection against HIV transmission through sexual activity. Practice questions measured changes in patient care/individual practice as a result of the HIV epidemic, implementation of any education or counseling programs about prevention of the virus, and individual continuing education about AIDS/HIV.

Attitude questions assessed feelings about mandatory testing for HIV, the health care professional’s right to know if a patient is infected with the virus, their right to refuse treatment of these patients, and blame associated with infection. Questions concerning continuing education activities also were included.

**Analysis**

Frequencies were tabulated for all respondents for each question. Relationships among personal and professional characteristics, knowledge, attitudes, and changes in clinical practices were investigated using χ² to test contingencies at the .05 level. Comparisons were made among groups (e.g., nurse executives; physicians; dentists; and laboratory, x-ray, and respiratory therapy managers) and among those in different practice sites.

**RESULTS**

Completed questionnaires were returned by 41% (114 of 275) of those who received the survey. (Twenty-five questionnaires were returned by the post office as undeliverable; 24 of these were addressed to practitioners and 1 was addressed to a manager.) Because complete confidentiality was maintained, there was no follow-up. Respondents comprised nurse executives, 25%; physicians, 37%; dentists, 13%; laboratory managers, 13%; and other health professions, 12%.

The numbers surveyed and responding in each practitioner group are shown in Table 1. The clinical practice settings of practitioner groups are shown in Table 2. Tables 3 to 5 report the response by group to the knowledge and clinical practice questions.

The largest number of respondents were in independent practice with the settings of hospitals, long-term care facilities, and other set-
### TABLE 2

**Practice Setting of Respondents by Profession**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Nurse Executives</th>
<th>Laboratory Managers</th>
<th>X-Ray/Respiratory Therapy Managers</th>
<th>Physicians</th>
<th>Dentists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent practice</td>
<td>5 (18%)</td>
<td>9 (60%)</td>
<td>14 (100%)</td>
<td>28 (68%)</td>
<td>15 (100%)</td>
</tr>
<tr>
<td>Hospitals</td>
<td>22 (79%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-term care</td>
<td>1 (3%)</td>
<td>6 (40%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other*</td>
<td></td>
<td></td>
<td></td>
<td>4 (10%)</td>
<td></td>
</tr>
</tbody>
</table>

*Ambulatory care, HMO, independent laboratory

### TABLE 3

**Respondent Knowledge of Precautions that Should Be Taken in Health Care Settings to Prevent HIV Transmission**

<table>
<thead>
<tr>
<th>Precaution</th>
<th>Correct Response*</th>
<th>Percentage of Correct Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gloves</td>
<td>Y</td>
<td>Nurse Executives (n = 27)</td>
</tr>
<tr>
<td>Goggles</td>
<td>Y</td>
<td>Laboratory Managers (n = 15)</td>
</tr>
<tr>
<td>Masks</td>
<td>Y</td>
<td>X-Ray/Respiratory Therapy Managers (n = 9)</td>
</tr>
<tr>
<td>Gowns/Lab coats/Aprons</td>
<td>Y</td>
<td>Physicians (n = 41)</td>
</tr>
<tr>
<td>Shields</td>
<td>Y</td>
<td>Dentists (n = 15)</td>
</tr>
<tr>
<td>Hand and skin washing</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Puncture-proof containers</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Foot covers</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Disposable bedding</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Ultraviolet light</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Sterilizing dishes in an autoclave</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Cleaning surfaces</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Secure containers for</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>specimens and excreta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sterilization of reusable equipment</td>
<td>Y</td>
<td></td>
</tr>
</tbody>
</table>

*Y = yes, N = no
TABLE 4
Respondent Knowledge of Measures that Provide Protection Against Transmission of the HIV Through Sexual Activity

<table>
<thead>
<tr>
<th>Measure</th>
<th>Correct Response*</th>
<th>Nurse Executives (n = 27)</th>
<th>Laboratory Managers (n = 15)</th>
<th>X-Ray/Respiratory Therapy Managers (n = 9)</th>
<th>Physicians (n = 42)</th>
<th>Dentists (n = 15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condom</td>
<td>Y</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Spermicidal foam</td>
<td>Y</td>
<td>22</td>
<td>40</td>
<td>0</td>
<td>31</td>
<td>40</td>
</tr>
<tr>
<td>Diaphragm</td>
<td>N</td>
<td>89</td>
<td>93</td>
<td>100</td>
<td>93</td>
<td>93</td>
</tr>
<tr>
<td>Contraceptive pill</td>
<td>N</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Vasectomy/Tubal ligation</td>
<td>N</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>98</td>
<td>100</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>N</td>
<td>96</td>
<td>100</td>
<td>100</td>
<td>98</td>
<td>100</td>
</tr>
<tr>
<td>Intrauterine contraceptive device</td>
<td>N</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

*Y = yes, N = no

TABLE 5
Percentage of Respondents Who Changed Aspects of Client Care Because of AIDS/HIV

<table>
<thead>
<tr>
<th>Procedures</th>
<th>Nurse Executives (n = 24)</th>
<th>Laboratory Managers (n = 15)</th>
<th>X-Ray/Respiratory Therapy Managers (n = 9)</th>
<th>Physicians (n = 34)</th>
<th>Dentists (n = 14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use protective coverings, gloves, masks, goggles</td>
<td>75</td>
<td>100</td>
<td>100</td>
<td>77</td>
<td>100</td>
</tr>
<tr>
<td>Use improved disposal of sharp objects</td>
<td>83</td>
<td>73</td>
<td>89</td>
<td>85</td>
<td>79</td>
</tr>
<tr>
<td>Use new types of equipment (eg, syringes)</td>
<td>13</td>
<td>13</td>
<td>11</td>
<td>21</td>
<td>14</td>
</tr>
<tr>
<td>Include risk factors in health histories</td>
<td>29</td>
<td>13</td>
<td>33</td>
<td>74</td>
<td>64</td>
</tr>
<tr>
<td>Use procedures for ensuring confidentiality</td>
<td>50</td>
<td>87</td>
<td>44</td>
<td>56</td>
<td>36</td>
</tr>
</tbody>
</table>
tions following in descending order. The gender, profession, organization, and educational degrees of respondents were significantly related, with women more likely to be nurse executives who had bachelors degrees and worked in organizations. All physicians and dentists who were independent practitioners were men.

Sixty-two percent of the respondents were male and 38% were female. Eighty-eight percent were between 30 and 59 years of age, with the majority entering their clinical practice between 1960 and 1980.

Twenty-two percent of all survey participants reported that they did not have adequate knowledge about AIDS/HIV, which 46% of the nurse executives indicated. This was significantly different from the 19% of the physicians/dentists who said they did not have sufficient knowledge. The difference between having HIV and having AIDS was recognized by 95%.

Respondents were asked to choose from a list of laboratory tests that could be used to diagnose AIDS infection; 96% knew that a complete blood count, alanine transaminase (ALT), serum aspartate transaminase (AST), and antibody to hepatitis B core antigen diagnostic tests were not appropriate. Eighty-two percent knew that HIV-ELISA and HIV-Western blot were used. Laboratory managers gave the highest number of correct responses, followed by dentists, physicians, and nurse executives.

In contrast, all practitioners (100%) were knowledgeable about the use of condoms in the prevention of HIV transmission through sexual activity, but only 30% knew that the use of spermicidal jelly, foam, or cream provided some additional protection.

Of the total respondents, 63% reported that they had contact with HIV-infected patients and/or supervised workers who had such contact. Nurse executives (25%) and dentists (23%) gave fewer positive responses than did the x-ray and respiratory therapy managers (100%), laboratory managers (93%), and physicians (88%). At least 85% of each group and 87% of the total group indicated that they had changed aspects of patient/client care as a result of counseling was reported by 27% of the total respondents; only 11% were involved in community education. Most of the survey participants (70%) indicated that they had attended some type of educational session regarding AIDS/HIV, and 99% had read about the infection in a professional publication within the past year.

Ninety-one percent of respondents believed that health care professionals have the right to know if a patient is infected with HIV. When asked about the right to refuse treatment, however, 80% of all respondents said that health care professionals did not have that right.

Interestingly, none of the nurse executives or laboratory managers and only one (11%) of the x-ray and respiratory therapy managers thought that health care professionals could refuse treatment to people with HIV infection. However, 53% of the dentists and 28% of the physicians in independent or group practice did think that health care professionals had refusal rights.

Sixty-six percent of the total group believe that there should be mandatory testing for HIV in some situations (eg, marriage licenses, hospitalization). A majority (73%) thought that HIV-infected patients were at least sometimes responsible for their own condition.

Most nurse executives and other health care providers in this study (83%) desired additional educational opportunities to update their professional knowledge about AIDS/HIV. They were asked to choose their preferences from a list of those types of educational opportunities (ie, inservice training, journal articles, conferences, workshops, newsletters, courses, displays, and videos). The
only educational opportunity chosen by a majority (68%) was newsletters, pamphlets, and/or brochures. There was a preference for methods of continuing education that required less time commitment.

**DISCUSSION**

Education aimed at the prevention of AIDS and at palliative treatment are major responsibilities of health care professionals in the absence of a vaccine or totally curative treatment. In 1982, the CDC issued guidelines for the prevention of human immunodeficiency virus (HIV) transmission in health care settings. “Universal precautions” were recommended by the CDC in 1987, and, thus, all patients were to be viewed as potentially infected with HIV or other transmissible diseases. Therefore, contact with all patients’ blood or body fluids had to follow infection control procedures.

These recommendations became mandatory for all health care professionals in 1988 (US Department of Labor, 1987). In turn, in accordance with these CDC requirements, health care managers are responsible for providing a safe work environment that will protect both employees and patients.

Providers of health care are responsible for advising patients about prevention and treatment of AIDS. Those who do not have current information cannot be effective in fulfilling these responsibilities. Thus, the degree to which the further spread of HIV/AIDS can be prevented is at least partially a function of preventive and education measures taken by health care professionals and organizations.

Despite the large amount of information available to health care practitioners and managers about HIV transmission, infection and prevention, a higher percentage than expected indicated inadequate knowledge concerning AIDS/HIV. This perceived inadequacy was supported by the answers to the questions concerning diagnostic laboratory testing and precautions that should be taken in health care settings. This was particularly striking in nurse executives, especially those employed in long-term care facilities.

It also was noteworthy that overall respondent knowledge about sexual precautions (e.g., the use of condoms) was greater than respondent knowledge about professional precautions (e.g., use of gloves) in preventing HIV transmission. This shows that they had the basic information necessary for teaching preventive methods to clients or patients—but raises questions about their professional practices.

Although a large majority indicated that they had changed aspects of client care as a result of the AIDS epidemic, not all nurse executives or physicians were following CDC requirements for protective covering, nor did they all improve disposal of sharp objects.

Despite the lack of knowledge in certain respondents concerning HIV testing and prevention, a large majority indicated that they had received some type of educational information about HIV infection in the past year. This discrepancy may mean that the information or the method by which it is being disseminated to health care professionals is not effective. The latter reason may be supported by the respondents’ desire to have additional or new information about AIDS conveyed in forms that quickly get across the facts. It also may indicate that respondents absorbed more information from brochures, advertisements, and public service announcements aimed at the general public than from professional literature.

Although the majority of survey participants indicated that they or persons they supervised provided some type of AIDS/HIV prevention education/counseling in the workplace, there was minimal participation in community education.

The attitudes found concerning the right to know if a patient is infected with HIV, as well as attitudes about mandatory testing, are similar to results from other surveys conducted in this country (Albrecht, 1989; Kelly, 1987; Lewis, 1987; Reed, 1984; Smyser, 1990; Swanson, 1990, Verrusio, 1989). Some practitioners have advocated the right to know the HIV status of patients to allow the health care worker to exercise maximum precautions (Gordon, 1987).

Because of individual variation in the time in which seroconversion
takes place and is detectable by present diagnostic tests, universal precautions still appear to be the best method of preventing HIV transmission in health care settings. It is interesting to note that the percentage of individual practitioners (dentists and physicians) who believed that health care professionals had the right to refuse treatment to people with HIV infections is in direct contrast with those employed in management positions in health care organizations.

The respondents' views about the patient's right to know if health care professionals were infected with HIV were not investigated because that topic is not directly related to prevention, given the small risk of such transmission.

The major threat to the validity of this study is the possible differences between persons who returned the questionnaire and those who did not. Because of the promise of confidentiality, follow-up was impossible and there was no way to ascertain whether the practitioners who responded were significantly different from those who did not. The consistency of the findings, however, makes it unlikely that additional respondents would have altered the results.

The results of this survey suggest the need for more education for health care professionals, particularly nurse executives, and that programs be devised that are fast, efficient, and effective.

Furthermore, the reasons for the high incidence of independent practitioners who believe in refusal rights were managers who did not have direct patient contact as did the dentists and physicians.

**NURSING IMPLICATIONS**

The most significant nursing implication was the identification of the need to plan for the likely probability that long-term care institutions will encounter a substantial increase in the number of patients infected with HIV. It will be necessary for nurse executives in long-term care facilities will need to become increasingly more knowledgeable about AIDS.

**REFERENCES**


AIDS PREVENTION

KEYPOINTS

1. Because health care providers are the key professionals in advising patients about prevention and treatment of HIV/AIDS, the degree to which spread can be prevented is at least partially a function of preventive and education measures taken by health care professionals.

2. Nurses surveyed believe that they do not have the right to refuse treatment to patients infected with HIV.

3. Twenty percent of health care professionals indicated they did not have adequate information concerning HIV, with the largest group being nurse executives in long-term care facilities.

4. The survey indicated that more efficient and effective educational methods should be used to increase health care practitioners’ knowledge about AIDS.

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