CHAPTER 2

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Literature review and related researches

The objectives of this study are to identify nurses' knowledge and attitudes toward AIDS and universal precautions practices of nurses and to examine the relationships among the knowledge and attitudes toward AIDS and universal precautions practices. According to the purposes of this study, the literature is reviewed covering these topics:

1. Knowledge toward AIDS
2. Attitudes toward AIDS
3. Universal precautions practices
4. Relationships among knowledge and attitudes towards AIDS and universal precautions practices

Knowledge toward AIDS

Knowledge is described in Webster's dictionary (1991) as understanding of a science, art or technique. It is the body of the truth, information and principles gained by mankind. Since AIDS was first recognized in 1981, more and more knowledge about AIDS has been gained through researches. The knowledge toward AIDS is reviewed as the following topics:

HIV/AIDS

Acquired Immunodeficiency Syndrome (AIDS) is a disease caused by a virus which attacks and weakens part of the body's immune system. It leaves a person vulnerable to a variety of unusual life-threatening infections and cancers.

Acquired--means that it is passed from person to person.

Immunodeficiency--describes the condition when the body's ability to protect itself against disease is weakened.

Syndrome--that means a group of signs and symptoms which result from a common cause or appear in combination to present a clinical picture of a disease (WHO, 1990).

Human Immunodeficency Virus is the causal agent of AIDS. It is a retrovirus, 100-120 nanometres in diameter. HIV is considered a retrovirus because it carries its genetic material in the form of a single-standed RNA, utilizes an enzyme, reverse transcriptase, to form a double standed DNA copy of its viral genome. The host cell, which contain the CD4 surface receptors, includes some lymphocyter (e.g. T4-helper cells), some macrophages and microglial cells in the brain.

The infected cells are turned into virus-producing cells and eventually destroyed. Viral replication increases when the infected T-helper cell is activated. Helper cells can be activated by infections or by the presence of substances concentrated Factors VIII. Newly produced viruses are liberated by "budding" out from the host cell and infect more helper cells, eventually leading to their destruction. Once helper cells are deleted, B lymphocytes are inefficient.

Cytotoxic T cell and lymphokine-producing T-cell activity is also impaired, resulting in decreased ability of the immune system to destroy neoplastic and virus infected cells (Pratt, 1991).

Epidemiology

Acquired Immunodeficiency Syndrome was described first in the United States in 1981. It was recognized in young homosexual men who had Kaposi's sarcoma and serious infections-predominantly pneumocystis carinii pneumonia, which were unusual in men in this age group with no known reason for their defective immune status. To date the incidence of AIDS cases is increasing rapidly. The infected persons include both people with high risk behavior and those without high risk behavior. By February 1988, there were a total of 81,433 cases of AIDS officially reported to the World Health Organization from 133 countries around the world (Fleming, Carballo, Fitasimons, Bailey, & Mann, 1988). This was only a fraction of the actual number. The World Health Organization estimated that the cumulative HIV/AIDS cases was 34.6 million all over the world in January 1996, including 4 million children and 13.1 million women. The cumulative HIV/AIDS deaths was 5.8 million in the world at the same time (UNAIDS, 1996).

From the worldwide picture of AIDS, the different countries have different HIV infection spreading patterns. In America and Europe, the two largest categories infected are homosexual men and intravenous drug users (IDUs). In Africa

and some other areas of the world, heterosexual spreading and spreading by prostitution are more important risk factors. A relatively large proportion of the infected people are women of child--bearing age and therefore there is a large and growing tragedy of HIV infection in newborns and children in these areas. In Asia, many of the early infections were associated with direct contact with other parts of the world (Fleming, Carballo, Fitasimons, Bailey, & Mann, 1988). Then, HIV infection spread rapidly in IDUs, followed by waves of transmission to female prostitutes, then into their non-IDU male clients, and into the low-risk non-prostitutes wives and girlfriends of these men in the general population (Weniger et al., 1991).

In China, the first AIDS case was reported in 1985 in a foreigner traveler. And the intravenous drug users become the majority (70%) of HIV positive persons in following years. In Kunming, in southeast China, ninety percent of the 429 HIV positive individuals detected in this region among 19,000 tested between 1986 to 1990 were intravenous drug users (Weniger et al., 1991). In August 1996, there was 4,305 cases of HIV positive or AIDS cases reported from all areas of the country. And the reported number was just a fraction of actual number. According to the estimation of specialists, there were about 50,000 to 100,000 HIV/AIDS cases in China in 1995(Wu, 1996). The trends of HIV infection are moving to the west-northern area from the west-southern area of China. In fact, China has entered into the early period of prevalence of AIDS

(Wu, 1996). In these years, many foreigners as well as those from western cultures came into China at the same time inputting advanced technology. The huge migrant population within the country, people's lack of awareness of infection, deficit knowledge of prevention, the continued existence of drug abuse and prostitution, the growing number of people with venereal diseases have all created opportunities for the spread of AIDS (Chinese News Agency, 1996).

Clinical manifestation

HIV infection usually presents four clinical stages (Schoub, 1994).

1) Acute HIV infection. A complex of flu-like syndrome, including fever, malaise, lymphadenopathy and fatigue which generally occurs about 14-21 days after exposure to the virus and is resolved within a week or so, followed in most patients by seroconversion to positive antibody to HIV (Flaskerud & Ungvarski, 1992).

2) Asymptomatic phase. Following seroconversion, the infected individual becomes antibody positive and may remain asymptomatic for many years prior to developing clinical illness as a result of infection. This phase can be divided into asymptomatic HIV infection and persistent generalized lymphadenopathy (PGL).

3) AIDS related condition (ARC). In this phase, many individuals may develop a variety of indicators of ill health due to HIV infection without developing major opportunistic

infections or secondary cancers. The clinical signs includes weight loss, diarrhea, fever, night sweats, swollen lymph glands, which can persist for several weeks.

4) AIDS. This is the end stage of HIV infection. It is a disease process caused both by HIV itself and other opportunistic organisms or cancers. The possible symptoms include: dry cough, shortness of breath, fatigue, confusion, poor memory, skin rash, oral thrush, diarrhea (WHO, 1990). Accompanied by the symptoms of other main presenting diseases seen in AIDS: pneumocystic is carinii pneumonia (PCP), toxoplasmosis, cryptosporidiosis, mycobacterial infections, and Kaposi's sarcoma (Pratt, 1991).

Transmission

HIV is a bloodborne virus and has been isolated from blood, semen, saliva, tears, breast milk and cerebrospinal fluid of infected persons (Pratt, 1991). It is a sexually transmitted disease principally. However transmission can occur via a variety of methods involving contact with blood, blood products, and other body fluids.

Although HIV had been isolated from many body fluids of infected persons, detailed epidemiological studies through the world have documented three modes of transmission: sexual, parental and prenatal (WHO, 1993). HIV infection is not spread through causal contact, such as work and school contacts, coughing and sneezing, sharing cups, glasses, taking water and food, handshaking, touching or hugging, insects bites (WHO, 1990).

Testing

The tests that are widely used check for the presence of the antibody produced in response to HIV, not the virus itself. That is why the infected person can be tested positive 3-6 months after getting infection. The enzyme-linked immuno-sorbent assay(ELISA) is the cheap testing method and is commonly used for testing HIV antibody. And the Western Blot is the test that usually is used to confirm HIV infection. The tests may occasionally be negative even though a person is infected with HIV, particularly in the first few months.

Treatment

There is no known cure for AIDS, but many drugs are being used in experimental trials to determine their effectiveness against AIDS. Treatment for AIDS falls into one of two categories: 1) Antiviral treatments focus on destroying or inactivating the virus which causes AIDS in order to delay the injury to the immune system, reduce the following infection so as to prolong life. The commonly used medicines are Azidothimdine (AZT), Diethyl dithocarbamate (DDC). 2) Immuno-booster treatments attempt to rebuild or boost the immune system.

Universal precautions

Certain microorganisms thought to be transmitted primarily by blood and body fluids are increasing in

prevalence in the general population. As a result, health care workers in many settings may be increased risk of infection of HIV and other bloodborne pathogens. So the Centers for Disease Control established guidelines known as universal precautions (UPs) in 1987 to prevent transmission of bloodborne pathogens in health care settings. Universal precautions consider every patient as infected and therefore appropriate measures to avoid percutaneous and mucous membrane exposure to blood and body fluids should be enacted. Because medical history and examination can not reliably identify all patients infected with HIV and other bloodborne pathogens and sometimes there are no signs or symptoms, infection still can be transmitted. The CDC asks all health care workers to adopt the UPs when in direct exposure to blood or body fluids of all patients.

The universal precautions are listed below:

1) All health care workers should routinely use appropriate barrier precautions to prevent skin and mucous membrane exposure when contact with blood or other body fluids of any patients are anticipated. Gloves should be worn for touching blood and body fluids, mucous membranes, or non-intact skin of all patients; for handling items or equipment soiled with blood and body fluids, and for performing venipuncture and other vascular access procedures. Gloves should be changed after contact with each patient. Masks and protective eyewear or face shields should be worn during the procedures that are likely to generate droplets of blood and other body fluids to prevent exposure to mucous membranes of

the mouth, nose, and eyes. Gowns or aprons should be worn during procedures that are likely to generate splashes of blood or other body fluids.

2) Hands and other skin surfaces should be washed immediately and thoroughly if contaminated with blood or other body fluids. Hands should be washed immediately after gloves are removed.

3) All health care workers should take precautions to prevent injuries caused by needles, scalpels, and other sharp instruments during procedures, when cleaning used instruments after procedures. To prevent needle stick injuries, needles should not be recapped, purposely bent or broken by hand, removed from disposable syringes, or otherwise manipulated by hand. After they are used, disposable syringes and needles, scalpel blades, and other sharp items should be placed in puncture-resistant containers for disposal; the puncture-resistant containers should be located as close as practical to the use area. Large-bore reusable needles should be placed in a puncture-resistant container for transport to the reprocessing area.

4) Although saliva has not been implicated in HIV transmission, to minimize the need for emergency mouth to mouth resuscitation, mouth pieces, resuscitation bags, or other ventilation devices should be available for use in areas in which the need for resuscitation is predictable.

5) Health care workers who have exudative lesions or weeping dermatitis should refrain from all direct patient care

and from handling patient-care equipment until the condition resolves.

6) Pregnant health care workers are not known to be at greater risk of contacting HIV infection than health care workers who are not pregnant. However if HIV infection occurs during pregnancy, the infant is at risk of infection resulting from parental transmission. Because of this risk, pregnant health care workers should be especially familiar with and strictly adhere to precautions to minimize the risk of HIV transmission.

There are still some recommendations about infected waste management, disinfection and housekeeping to preventing HIV infections in health care settings. Studies have shown that HIV is inactived rapidly after being exposed to commonly used chemical germicides at concentrations that are much lower than used in practice. In addition to commercially available chemical germicides, a solution of sodium hypochlorite is an inexpensive and effective germicide. Environmental surfaces such as walls, floors, and other surfaces are not associated with transmission of infections to patients or health care workers.

Therefore extraordinary attempts to disinfect these environmental surfaces are not necessary. However, cleaning and removal of soil should be done routinely. Horizontal surfaces such as beds, tables, and hard-surfaces in patient care systems are usually cleaned on a regular basis, when soiling or spills occur, and when a patient is discharged.

Cleaning of walls, blinds, and curtains is recommended only if they are visible soiled. According to UPs, any items that had contact with blood, exudate, or secretions may be potentially infective, it is not usually considered practical to treat all such waste as infective. Infective waste, in general, should either be incinerated or should be autoclaved before disposal in a sanitary landfill.

All health care workers should learn and use appropriate barrier precautions routinely to prevent skin and mucous membrane exposure when in potential contact with blood or other body fluids including semen, vaginal secretions, amniotic fluid, pericardial fluid, peritoneal fluid, synovial fluid, cerebrospinal fluid or any body fluid visibly contaminated with blood.

All above is the review of information relating AIDS.

Nurse is one of largest groups of health care workers providing care for AIDS patients. They need to be knowledgeable about the disease and related nursing management (Brown, 1990; Flaskerud & Ungvarski, 1992; Haughey, scherer, & Wu, 1989). From the late 1980s, many researchers have been interested in and investigated the nurses' knowledge regarding AIDS (Akinsanya & Rouse, 1992; Haughey, Scherer, & Wu, 1989; Hausen, Booth, Fawal, & Langner, 1988; Steele & Melby, 1995; Van Servellen, Lewis, & Leake, 1988). In 1986, Stanford did the survey in a sample of 170 nurses to find out the strength and weakness of knowledge about AIDS. The level of knowledge exhibited by the respondents was unsatisfactory. The questions

relating to nursing care and legal aspects were answered particularly badly. Haughey, Scherer and Wu studied the knowledge regarding AIDS among a random sample of 581 RNs in Erie county, New York in 1989. The substantial deficiencies in knowledge were observed. The subjects were most knowledgeable about transmission of the disease. The greatest knowledge deficit observed was in relation to treatment and care of AIDS patients. The finding indicated the need to provide continuing education to prepare them to copy with the growing AIDS epidemic. This study also found that nurses who had care of AIDS patients scored significantly higher overall than those without experience. The authors recommended that the need of education was particularly prominent among nurses who had never cared for AIDS patients. The nurses' misconception about AIDS was also investigated by Sultan in 1991. In her study, eighty five percent nurses did not knew the category of viruses that HIV falls into; very few nurses knew the accurate time for HIV survival outside the body. The misunderstanding about AIDS also centered on the routes of transmission. In the survey conducted by the Veterans Administration Medical Center in Washington, D. C. and the National Institutes of Health in 1986, fifty percent of 1,194 nurses believed that AIDS could be spread through causal contact, and twenty percent believed AIDS could be spread through coughing and sneezing. Steele and Melby (1995) found that a large number of nurses in the survey believed that HIV could be contacted through their kissing a client on the cheek. They believed that HIV transmission could

occur through a bite or through vomiting. In the study of Van Servellen and colleagues (1988), only 10 percent respondents correctly identified the low risk groups, ninety percent answered incorrectly. They were reluctant to consider any groups at low risk. These beliefs regarding AIDS lead to irrational fears and refusing to care for AIDS patients. The nurses with high fears usually choose an overcautious approach to isolation precautions (Van Servellen, Lewis, & Leake, 1988).

In summary, the nurses' knowledge about AIDS usually was found to be deficit and inaccurate in previous studies. Almost all of these studies appeale the urgent needs of effective education to improve the knowledge regarding AIDS among nurses. Based on the reviews, knowledge toward AIDS of nurses in this study can be defined as the understanding of the current information of AIDS. It includes: AIDS causal agent, epidemiology, transmission, manifestation, testing, treatment, and the universal precautions to be taken. It is measured by knowledge toward AIDS questionnaire which is modified by the researcher based on the questionnaire developed by Senaratana, Leksawasdi and Nantasupawat (1996).

Attitudes toward AIDS

Attitude was defined by Thomas and Zanieki in 1970 as the mental network of concepts, beliefs, feelings and actions associated with a given object/issue (Thomas & Zanieki, 1970, cited in Doyle, 1987). It is a learned predisposition to

respond to people, objects or institutions in a positive or negative manner (Coon, 1989). McGuire suggested that there are three components of attitude (McGuire, 1969). They were (1) cognitive component--the individual's beliefs, this represents one's knowledge of the event, based on facts collected or acquired. It is the individual's understanding of something. It can arouse one's feelings toward the object. 2) affective component--the feelings of like or dislike toward the object or issue, they are influenced by one's values about how things ought to be, and serve as the standards of assessing things. So it is based on the cognitive domain of attitude. 3) psychomotor--an expression of behavior and interactions with other people. This will reflect individual's understanding and feelings toward a certain object. The affective, cognitive, and psychomotor components are observable aspects of attitude, which can be utilised so as to identify the existence of an attitude.

Attitudes toward AIDS are reflected from one's understanding, feeling and behavioral intention regarding AIDS. As the attitudes toward AIDS among nurses has directive association with the nursing practices, it has become a concerning topic fascinating many researches since AIDS spread all over the world.

AIDS is a life-threatening, transmissible disease. Because of its high mortality, it has evoked serious anxiety in the world. Moreover, through the accident of history, AIDS was seen as a disease of groups stigmatised by our culture. Thus,

the reactions to AIDS are reactions to homosexuals, intravenous drug users in general (Herek & Glunt, 1988). Brown and Turner (1989) also described the common feelings related to AIDS as following : (1) fear of contagion; (2) homophobia and fear associated with other lifestyle behaviors; (3) overidentification and fear of death and dying. In reality, nurses and other health care workers may share the fears, biases, homophobia which are held by the general community.

In most studies focusing on the attitudes of health care workers toward AIDS, fear of contagion always were cited as a primary concern by health care workers. In the study of Scherer and colleagues in 1992, the 59% of the 236 critical care nurses reported fear of contracting AIDS from patients. Sometimes, the personal experience of caring can help to reduce this kind of fear (Wissen & woodman, 1994). Besides fear of contagion, the worrying about how best to protect themselves and their families are also common concerns (Haughey, Scherer, & Wu, 1986).

In previous studies, the fear of contagion is often accompanied by the fear of occupational exposure. The study of Van Servellen and coworkers (1988) investigated this feeling. Despite of fact that the actual risk to nurses is exceedingly small, about a quarter (24.5%) of 1,109 nurses believed that they were at high or moderate risk for contracting AIDS because of occupational exposure in their current work. In study of Boland in 1990, the physicians, nurses and other health care workers felt they were at moderate to high risk

when in contact with AIDS. This fear of exposure increased the commitment to testing and needs to identify HIV positive patients. Hunt, Waddell and Robathan (1990) found that, among 416 respondents, the 45.3% nurses wanted patients to be HIV tested on admission to hospital, whereas 71.8% nurses wanted surgical patients tested. This finding showed that the staff associated their working situation with a high probability of exposure to HIV infection, the desire to test patients increased. Actually, testing for all patients id unreliable. Because it may take 3 months following infection for seroconversion to take place, and consequently, an infected person would test negative but be infected. In addition, a non-infected person would test negative but could become infected the next day. These findings revealed the influence of misunderstanding and fear of AIDS. As any patients could be HIV positive, the universal precautions can be seen as an alternative of testing to protect nurses from infection. In the study of Hunt, Waddell and Robathan (1990), the 71% nurses were faith in UPs. However, the study of Wissen and Woodman (1994) showed that a number of nurses thought practicing UPs was very time consuming and expensive.

In previous studies, stigmatization toward homosexuals and AIDS patients is also a common feeling toward AIDS. From the accident of history, most AIDS victims were homosexual or bisexual men or intravenous drug users. And society views homosexuals, drug users and prostitutes with suspicion and stigmatizes persons in these groups. So AIDS engenders in many

people strong fears regarding sexuality and drug use. These fears may produce a tendency to blame these victims (Brown & Turner, 1989). Prejudice towards homosexuals was thought to stem from the fact that they were considered more responsible for their illness (O' Donnell, O' Donnell, & Pleck, 1987). And AIDS patients were perceived to be twice as "responsible" for their illness as leukemia patients (Lawrence & Lawrence, 1990). Van Servellen and colleagues(1988) studied nurses' responses to the AIDS crisis. They also analysed the factors which may account for the generalised fear and withdrawal: (1) misinformed, uninformed persons be frightened, avoid, reject AIDS patients; (2) AIDS is a venereal disease; (3) homosexual behavior is immoral, illegal, reinforced by social forces; (4) society's discomfort with death and dying.

The fears and stigmatized feelings resulted a negative caring practice which was shown in the studies. In the study of Van Servellen and colleagues in 1988, a little half of 1,109 nurses who participated the survey indicated that nurses should be given the option to refuse to take care patients with AIDS or those suspected to have AIDS related symptoms. And when Dols and Bradley-Magnuson surveyed 300 nurses in 1996, the 61.2% subjects stated that they would not volunteer to care for an HIV infected patient. And 59.4% respondents stated that they would not provide mouth-to-mouth resuscitation on an AIDS patient if no protective device were available. The results in the study of Blumenfield and coworkers (1987) showed that nurses worked in intensive care units most likely to ask for

transfer to another ward if they were regularly required to care for AIDS patients. Nurses' refusing to care AIDS patients; delaying resuscitation on AIDS patients and asking for transfer to avoid caring for AIDS patients were very popular in many surveys focusing nurses' attitudes toward AIDS (Akinsanya & Rousep, 1992; McLeod & Silverthorn, 1988). These revealed the issues existing in nursing practices.

In summary, the nurses' attitudes toward AIDS revealed in previous studies were common in fear of contagion, perceived high risk of infection, unwilling to care, asking for transfer. In this study, attitudes toward AIDS can be defined as the beliefs, feelings and behavioral intentions of nurses toward AIDS. It was measured by the attitudes toward AIDS questionnaire which is modified by the researcher based on the questionnaire developed by Senaratana, Leksawasdi and Nantasupawat (1996).

Universal precautions practices

Behavior generally is construed to be any action of an individual that can be seen, felt, or heard by another person (Bloom, 1975). A concept of action implies psychomotor involvement. Kibler (1970) stated that cognitive and affective objectives are concerned with characteristics of thinking and feeling which are themselves not directly observable. States of affection and acts of cognition are inferred from psychomotor acts (Kibler, 1970, cited in Reilly, 1975). The individual's behavior is determined by and reflects one's

cognition and affection. Universal precautions practices is the behavior of nurses to prevent HIV or other bloodborne pathogens infections. It may influence or be influenced by knowledge and attitudes toward AIDS of nurses.

Universal precautions practices refer to the behavior of compliance with universal precautions of nurses when there is a risk of direct exposure to any blood or body fluids. Because not all infected patients will be tested positive for the HIV antibody, the health care workers may not know who is or is not infected. The UPs ask all health care workers to treat all patients as infected all the time. Therefore, UPs is the safest way to protect nurses from HIV infection. The adaptation of UPs in health care settings to prevent occupational infection has been mandated by the Occupational Safety and Health Administration. Courington, Pattern and Howard (1991) analyzed the advantages of implementation of universal precautions in health care settings. They said the advantages of UPs are significant and include the elimination of health care workers risk of acquiring blood and bodyborne infections during the care of patients, the provision of a uniform standard of infection control that is easy to learn and teach, and reduction in the need for routine infection screening of patients in high risk groups. Because of fear of contagion, many nurses choose overcautious approaches when caring for AIDS patients (Van, Servellen, Lewis & Leak, 1988). In the study of Burtis and Evangelisti (1992), forty to sixty percent of nurses always used double layers of gloves when

taking care of patients. However, on the other hand, the rate of compliance of UPs of some nurses was low. Courington, Pattern and Howard (1991) conducted a study to test the compliance with UPs at a hospital at the University of Florida. They observed the compliance of UPs of the personnel in the operating room, surgical ICU and three surgical wards. Five hundred and forty-nine procedures were observed in the study. The fractions occurred in 57 percent. In the comment of the article, the authors analyzed the reasons of this phenomenon. They deduced that, despite the advantages of UPs, major disadvantages existent the least of which are the estimated 15 percent increase in hospital costs of UPs implementation and the necessary change in hospital practice.

Baraff and Talan (1989) investigated the low rate of compliance of emergency department health care workers with barrier precautions. In their survey, the health care workers' encounters with 97 patients were observed. In critical patients care, gloves were worn by health care workers as follow: needle use 64 percent; physical examination 72 percent; incubation 88 percent; physical handling of patient 76 percent; gowns, masks and protective eyewear were used in encounters with critical patients by 28 percent; and 18 percent of workers, respectively during their encounter with critical care patients though potential for exposure to blood was high. The authors concluded that the rate of compliance with universal precaution policies by emergency department personnel was unacceptable, and this may be in part

due to lack of appreciation of the risk of transmission of HIV to health care workers, and partly due to the impression that protective equipment were ineffective and unavailable.

Gerson and colleagues (1995) did the survey of 1,716 hospital-based health care workers to assess and characterize current rates of compliance with UPs and to determine the correlates of compliance. The results showed that compliance was strongly correlated with several following factors: (1) perceived organizational commitment to safety, (2) perceived conflict of interest between workers' need to protect themselves and their need to provide care to patients, (3) risk-taking personality, (4) perception of risk (5) knowledge regarding routes of HIV transmission, and (6) training in universal precautions. Gruber and colleagues surveyed 213 RNs in 1989 to identify the knowledge of AIDS and practices of Ups. The percentage equivalent mean score of UPs practices was 64% in their study. They identified the barriers of compliance of UPs were unavailability of supplies, weak directives, nonspecific directions and "habit".

Nurses have been practicing for many years under the old "disease-driven" infection control policy and procedures. The habits are hard to overcome and they have been reported to be slow to respond and incorporate this new mode of practice sometimes (Brider, 1988)

In previous researches, the compliance of UPs of nurses were not satisfactory in reality. There were many factors affecting the compliance of UPs. As the incidence of AIDS is

increasing all over the world, the universal precautions practices is important and necessary for nurses. But no research had been found about Chinese nurses' universal precautions practices. Therefore, it is very urgent to identify the universal precautions practices of nurses in China and at PUMC hospital. The universal precautions practices of nurses in this study can be identified by the universal precautions practices questionnaire which is modified by the researcher based on the questionnaire developed by Senaratana, Leksawasdi and Nantasupawat (1996).

Relationships among knowledge and attitudes toward AIDS and universal precautions practices

Knowledge, attitudes and behavior are important concepts of human personality. Certain knowledge can arouse feelings and beliefs which affect the ability of action (McGuire, 1985, cited in Weiton, 1992). The attitudes have one property that it can exert a directive influence upon behavior (Voss, 1974). So one's knowledge and attitudes may affect individual's behavior. The change of individual's behavior must be accompanied by the change in cognitive and affective domains (Mellish, 1982). Therefore, they affect one another actually. Knowledge regarding AIDS is the base of forming and changing of attitudes toward AIDS. The attitutds toward AIDS can affect the behavior toward AIDS. The universal precautions practice is the protective behavior in preventing HIV transmission. It also relate with one's knowledge and

attitudes toward AIDS.

It has been confirmed in the previous studies that accurate knowledge about AIDS is significantly correlated with lower anxiety, willingness to work with AIDS patients, and appropriate professional behaviors toward patients with AIDS (Turner, 1988). Brown, Calder and Rea conducted a survey in 1990, which aimed to determine whether increased knowledge about AIDS could foster good attitudes. The subjects in their study were the total population of first to fourth year baccalaureate undergraduate nursing students who attended 1-day AIDS workshops. The number of subjects was 319 in the study. As was anticipated, the participants demonstrated increased knowledge about AIDS on the post-test after the 1-day workshop. The attitudes were also more positive on the post-test ($P<0.05$). This change was seen as the result of gaining knowledge from workshops. The authors explained that knowledge of the syndrome, its modes of transmission, and techniques of management may help reduce anxiety about nursing AIDS patients, thus enhancing the ability to give care. The study indicated that increased knowledge related AIDS changed nursing students' attitudes toward AIDS.

Lawrence and Lawrence (1989) compared knowledge and attitudes about AIDS among registered nurses, baccalaureate nursing students, and nurses with graduate degrees. They found that higher levels of education were associated with more favorable attitudes and greater knowledge of AIDS. Knowledge of AIDS was positively correlated with more favorable

attitudes towards AIDS in all comparison groups.

In the study of Grady and colleagues in 1993, one hundred registered nurses who were attending a monthly professional organization meeting or attending graduate level nursing class were surveyed. The survey showed that training programs addressing attitudes and knowledge may help change health care workers' non-compliance with universal precaution. As the knowledge toward AIDS can influence the nurses' awareness of risk of infection, consequently, it can influence the compliance of universal precautions of nurses. Attitudes toward AIDS can influence the compliance of universal precautions. High level of fear, mostly based on the misinformation, always leads to overcaution behaviors of nurses and to avoiding to care for AIDS patients. The good implementing universal precautions can reduce the fear and increase the comfort with AIDS patients.

Burtis and Evangelisti (1992) studied the relationships among implementing UPs and nurses' knowledge and attitudes toward AIDS. The survey was done before and after implementation of universal precautions for 6 months. Through the study, they found there was a greater number of nurses who would accept an assignment to care for patients with AIDS (17%). After training and implementation of UPs, forty eight percent of nurses correctly agreed that their potential exposure to AIDS infection is large but carries a low personal risk of seroconversion. After the implementation of UPs, the nurses' confidence of protecting themselves from infection in

increased. There is a 17 percent increase if the diagnosis was not established or suspected on the patients admission; a 15 percent increasing in identified comfort in giving direct care to patients with AIDS. The study of Burtis and Evangelisti (1992) also discovered that there was a reduction in overcautious practices. After implementation of UPs, the 97% nurses can correctly use gloves, and the 85% nurses can correctly use gowns. However 20 to 30 percent of nurses' responding appeared to be unaware of the protective benefit of masks in the avoidance of potential splash exposures. The result of this study showed the interrelated effects among the knowledge and attitudes toward AIDS and UPs practices of nurses.

Nevertheless, unlike most other studies, the study of Lester and Beard (1988) found that greater knowledge was related to great fear to AIDS. This survey was done in 117 baccalaureate nursing students to investigate the factors influencing the fear of AIDS.

The survey by Gruber (1989) also indicated that there was no relationship between knowledge regarding AIDS and universal precautions practices of nurses. The author analyzed that there were several factors besides knowledge had influenced on the UPs practices. The factors included unavailability of supplies, lack of guideline and lack of training in UPs.

There are many studies that had been done to investigate the knowledge and attitudes toward AIDS and practices of nurses as

well as the relationships among them in other countries. The results had supplied a wide range information about nurses' knowledge, attitudes and practices related with AIDS. This information had improved nursing practices.

Conceptual framework

The conceptual framework in this study derived from the literature reviews.

Knowledge, attitudes and behavior are important concepts of human personality. They affect one another. Certain knowledge can arouse feelings or beliefs that affect the ability of action. The attitudes can exert a directive influence upon behavior. Change of one's knowledge and attitudes may change individual's behavior. Behavior is the reflection of knowledge and attitude and change of behavior also can change one's knowledge and attitudes. In this study, knowledge toward AIDS is the understanding of the current information on AIDS. Attitudes toward AIDS refer to the beliefs, feelings and behavioral intentions of nurses toward AIDS. Knowledge toward AIDS is the base of forming and changing of attitudes toward AIDS. Knowledge and attitudes toward AIDS can affect the behavior toward AIDS. Behavior is studied of the universal precautions practices which represent the compliance of UPs of nurses in preventing HIV infection in health care settings. It related with one's knowledge and attitudes toward AIDS.