Effect of National Seminar on AIDS and Anesthesia Upon Knowledge, Attitude and Practice Concerning HIV Among Thai Anesthesia Personnel

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Abstract

In the national seminar of AIDS and Anesthesia which was a short course educational program in all aspects of HIV medicine, 195 questionnaires about knowledge, attitude and practice concerning HIV were distributed among the participants (anesthesiologists and nurse anesthetists) in 3 periods, pretest, post test (at the end of 2 days seminar) and post test 2 (at 4 months after the seminar). There were 177 (90.76 %) respondents who completed both pretest and post test 1 questionnaires. About 12 questions of knowledge ; mean scores were statistically significantly increased ; 7.95 (0.98) *vs* 9.5 (0.78), $P < 0.001$. Two thirds (8 out of 12 questions) were answered correctly in post test 1 more than in the pretest by Mc Nemar Chi-square test ; $P < 0.05$. About attitude ; 2 out of 5 answers changed significantly by Mc Nemar Chi-square test ; $P < 0.05$. The post test 2 questionnaires were mailed to all 177 participants twice asking to reply only once. All questionnaires were to be completed anonymously. The post test 2 with a response rate of 65.5 per cent revealed that universal precautions were frequently used among Thai anesthesia personnel but not universally followed. At least one-third of the respondents admitted recapping before disposal of used needles. Fifty six per cent of respondents (*vs* 22.8 % in pretest) admitted re-using one syringe for more than one patient. In conclusion, this study showed that a short course educational program may improve knowledge about HIV and partly change attitude, but can not change behaviour. Changing the practice of anesthesia health care workers needs continual education and appropriate training.

Key word : Education, Knowledge, Attitude, Practice, HIV, Anesthesia, Health Care Worker

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The first case of AIDS in Thailand was reported in September 1984. During that period, AIDS was believed to be a disease confined to only gay men. Four years later, in 1988, the first epidemic swept through injecting drug users in Bangkok. Since 1989, consecutive epidemics have occurred

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and spread to commercial sex workers, their clients and pregnant women[1]. The Division of Epidemiology, Ministry of Public Health initiated a sentinel serosurveillance of HIV infection in June 1989. The principle was to have all provinces perform systematic and regular biannually surveys in June and December[2]. Based on the HIV infection rate derived from serosurveillance and relevant epidemiological studies, the Ministry of Public Health estimated the number of HIV infected persons. The number increased from 50,000 persons at the end of 1989 to 450,000 in 1993 and 800,000 in 1997. As of Febuary 28, 1997, there were 57,550 reported AIDS cases and 23,968 reported symptomatic HIV patients[3].

The increasing prevalence of Acquired Immuno Deficiency Syndrome (AIDS) has heightened the concern over the risk of transmitting HIV between patient and health care professionals especially Thai anesthesia personnel. Medical and social consequences of AIDS have evolved amidst tension and controversy because health professionals are unaccustomed to facing this deadly contagious disease without highly effective preventive and therapeutic tools.

In 1991, we studied the knowledge, attitude and practice about HIV among 571 Thai anesthesia personnel. Only 15 out of 22 items (68.18 %) of the questionnaires about knowledge were answered correctly by more than half of the respondents[4]. In 1992, we studied the risks of blood and body fluid contamination during general endotracheal anesthesia performed by medical students, residents, nurse anesthetists and staff anesthesiologists at King Chulalongkorn Memorial Hospital which revealed that universal precaution was not uniformly used especially among staff anesthesiologists[5]. Bueschling WJ et al and Hammond JS suggested that improved compliance might result from active healthcare-worker education[6,7]. In 1997, the Department of Anesthesiology, Faculty of Medicine, Chulalongkorn University hosted the first national seminar of AIDS and Anesthesia in cooperation with the Royal College of Anesthesiologists of Thailand, Ministry of Public Health and the Thai Red Cross Society for Thai anesthesia personnel. This study was designed, therefore, to examine the effect of this short course educational program on knowledge, attitude and behaviour during anesthesia practice among Thai anesthesia personnel.

METHOD

During the first national seminar of AIDS and Anesthesia hosted by the Department of Anesthesiology, Faculty of Medicine, Chulalongkorn University on March 26-27, 1997 at King Chulalongkorn Memorial Hospital in cooperation with The Royal College of Anesthesiologists of Thailand, Ministry of Public Health and The Thai Red Cross Society, questionnaires were distributed to the participants who attended this meeting. The questionnaire was designed to address demographic characteristics of the participants, knowledge, attitude and behaviour during anesthesia practices concerning HIV and epidemiologic data. Data were first collected before starting the educational activity after the opening ceremony as 'pretest' After 2 days of education activities such as lectures, panel discussion, symposium and small groups discussion on epidemiology, basic knowledge, symptoms and signs, diagnosis, treatment and subspecialties including Internal Medicine, Surgery, Radiology, Opthalmology, Pediatrics, Anesthesiology and Psychiatry, the second parts of the questionnaires were collected again from the same participants. The second part was designed to address the issues concerning knowledge and attitude as 'post test 1'. Four months after the national seminar on AIDS and Anesthesia, questionnaires were sent by mail to participants at their registered address twice and asked to reply only once. This follow-up questionnaire was designed by using the same questions as the 'pretest' concerning behaviour during anesthesia practice and epidemiologic data as 'post test 2'. The participants were encouraged to send back the filled in questionnaires with prepaid postage and informed that the questionnaire was designed to be completed anonymously to reduce the potential of self-report bias.

The data were collected and analyzed by descriptive statistics, by paired *t*-test for continuous data and by Mc Nemar Chi-square for categorial data. P value < 0.05 was considered as statistically significant.

RESULTS

A total of 195 questionnaires were distributed to the registered participants of the first national seminar on AIDS and Anesthesia. Completed questionnaires (both pretest and post test 1) were collected from 177 anesthesia personnel, indicating a response rate of 90.76 per cent. Twenty-seven respondents (15.3 %) were MD anesthesiolo-

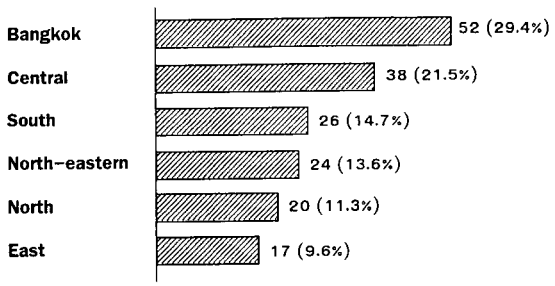

Fig. 1. Sites or regions of respondents.

gists, 84.7 per cent (150 respondents) were nurse anesthetists, 92.1 per cent (163 respondents) were female, 7.9 per cent (14 respondents) were male, 12.4 per cent (22 respondents) had less than 3 years experience and 87.6 per cent (155 respondents) had 3 years or more experience of practicing anesthesia. 73.4 per cent (130 respondents) worked in the Ministry of Public Health, 9.6 per cent (17 respondents) worked in medical school, 6.2 per cent (11 respondents) worked in other government hospitals and 5 per cent (10 respondents) were in private practice.

Table 1. Translated questionnaires and results (knowledge).

Which of the following are true (T) or false (F)	Correct answer	Pretest 1				Post-test 1			
		T	%	F	%	F	%	F	%
1. ลูกกินนมแม่ที่ติดเชื้อ HIV ลูกอาจติดเชื้อไปด้วย HIV can be transmitted from breast-feeding mother to her child.	T	143	80.7	34	19.3	153	86.4	24	13.6
2. อัตราการติดเชื้อในปัจจุบัน เกิดจากรักร่วมเพศมากกว่าสาเหตุอื่น At present, HIV transmission is more by homosexuality than by any other causes.	F	79	44.6	98	55.4	31	17.5	146	82.5
3. เด็กที่ได้รับเชื้อ HIV มักได้รับเชื้อจากครรภ์มารดา Infected children often get HIV from their mother prenatally.	T	141	79.7	36	20.3	140	79.1	37	20.9
4. เด็กอาจได้รับเชื้อ HIV ได้หลังคลอดถ้าแม่เป็นพาหะของโรค A child may be infected postnatally if its mother is a carrier.	T	140	79.1	37	20.9	160	90.4	17	9.6
5. พี่น้องที่อยู่บ้านเดียวกันอาจติดเชื้อ HIV จากกันและกันได้ง่าย Siblings living in the family easily transmit HIV to one another.	F	16	9.0	161	90.9	17	9.6	160	90.4
6. คนที่ติดเชื้อ HIV อยู่ในกลุ่มอายุ 20-39 ปี มากกว่ากลุ่มอื่น The infection rate of HIV is higher in the 20-39 age group.	T	161	90.9	16	9.0	169	95.5	8	4.5
7. ปี 2540 ในประเทศไทยประมาณการว่ามีผู้ติดเชื้อ HIV มากกว่า 800,000 ราย In Thailand, up to 1997, it was estimated that there were more than 800,000 HIV infected person.	T	159	89.8	18	10.2	175	98.9	2	1.1
8. ในกลุ่มบุคลากรทางการแพทย์ ผู้ที่ทำงานในห้องผ่าตัดเป็นกลุ่มที่มีโอกาสติดเชื้อ HIV สูงที่สุด Among medical personnel, the operating room personnel has the highest for HIV transmission.	F	141	79.7	36	20.3	61	34.5	116	65.5
9. เมื่อถูกเข็มเปื้อนเลือดคนไข้ตำ โอกาสติดเชื้อ HIV สูงมาก When puctured by blood contaminated needle, risk of HIV infection is very high.	F	79	44.6	98	55.4	77	43.5	100	56.5
10. การติดเชื้อจากถูกเข็มตำ Anti-HIV มักจะได้ผลบวกภายใน 6 เดือน After HIV blood contaminated needle stick injury, Anti-HIV usually turns to be positive within 6 months.	T	99	55.9	78	44.1	105	59.3	72	40.7
11. เข็มที่ใช้แล้วต้องใส่ปลอกเข็มให้เรียบร้อยก่อนทิ้งลงกล่องทิ้งเข็ม Used needle should be recapped before disposal.	F	80	45.2	97	54.8	36	20.3	141	79.7
12. ขณะนี้เมื่อหญิง HIV positive ตั้งครรภ์ แพทย์สามารถทำแท้งได้ตามกฎหมาย At present, it is legal for a physician to induce abortion in HIV infected pregnant patient.	F	87	49.2	90	50.8	41	23.2	136	76.8

The regions where the respondents came from are demonstrated in Fig. 1.

For epidemiological data in the pretest, 32 respondents (18.1 %) had a history of needle stick injury within 3 months. Seventeen respondents (9.6 %) suspected that HIV contaminated blood or secretion had contacted their wound in the past 3 months before answering the pretest questionnaire.

From questionnaires about knowledge the answers to a total of 12 questions in the pretest and post test 1 are shown in Table 1. The mean scores (standard deviation) from pretest and post test 1 were 7.95 (0.98) *vs* 9.5 (0.78), $p < 0.001$. Questions number 1, 2, 4, 6, 7, 8, 11 and 12 are the questions in which the respondents changed their answers with statistically significant difference, $p < 0.05$ by Mc Nemar Chi-square test.

From questionnaires about attitude, the answer of the respondents in pretest and post test 1 are shown in Table 2 with statistically significant difference in questions 13 and 15.

The post test 2 questionnaires were collected by mail from the participants replying to the same questions as in pretest 1 concerning behaviour during anesthesia practice anonymously. The response rate of post test 2 by mail was 116 or 65.5 per cent of the respondents who completed both pretest and post test 1 questionnaires. The details about behaviour during anesthesia practice are shown in Table 3 with bold numbers indicating the most frequently reported response (mode).

Sixty one per cent (108 respondents of post test 2) wear double gloves, 38.4 per cent (68 respondents) wear one layer of gloves during anesthesia for HIV infected patients.

In the past 12 months before answering the post test 2 questionnaires, 40 per cent (70 respondents), 37.1 per cent (65 respondents) had performed anesthesia for 6 or more and 1 to 5 HIV infected patients, respectively.

Table 4 summarizes the methods for disinfection or sterilization of laryngoscope blade during pretest and post test 2 (four months after the seminar).

DISCUSSION

Because of the tasks that the anesthesia personnel perform in the operating room, they are at risk for accidental needlestick injuries[8]. Percutaneous injuries with needles, or other sharp devices contaminated with infected material, may result in the transmission of blood-borne pathogens, including hepatitis B virus, hepatitis C virus, and human immunodeficiency virus[9,10]. In 1987, the Centers for Disease Control established some guidelines known as universal blood and body fluid precautions to prevent transmission of blood-borne pathogens in hospital settings. Compliance with universal precautions would protect health care workers from all blood and body fluid-borne pathogens and would eliminate the need for routine screening of high-risk patients[11]. From the survey

Table 2. Translated questionnaires (Attitudes).

Do you agree with each of these opinions ?	Pretest				Post-test 1			
	Yes	%	No	%	Yes	%	No	%
13. ขณะนี้มีผู้ติดเชื้อ HIV จำนวนมาก ควรให้สถานพยาบาลพิเศษ เฉพาะสำหรับผู้ติดเชื้อ There should be special health center to take care of HIV infected cases.	117	66.1	60	33.9	68	38.4	109	61.6
14. ผู้ติดเชื้อ HIV สมควรให้อยู่ในนิคมของพวกเดียวกัน HIV infected person should be accommodated in an exclusive colony.	54	30.5	123	69.5	44	24.9	133	75.1
15. การระบาดของโรคเอดส์ ทำให้ท่านคิดว่าน่าจะเปลี่ยนไปทำงานอื่นที่เสี่ยงน้อยกว่านี้ AIDS epidemic makes you think of changing to a new job of lower risk.	54	30.5	123	69.5	30	16.9	147	83.1
16. ถึงกระนั้นถ้าท่านรู้ล่วงหน้าว่าต้องบริการคนไข้ติดเชื้อ HIV ท่านก็ยังหงุดหงิด Even so, if you know that it is your turn to take care of HIV infected patient, you still feel irritated.	53	29.9	124	70.1	51	28.8	126	71.2
17. ควรมีกฎหมายมิให้หญิงติดเชื้อ HIV มีบุตร There should be a law forbidding HIV infected woman to bear a child.	117	66.1	60	33.9	119	67.2	58	32.8

Table 3. Translated behaviour during anesthesia practice.

Practice	Frequency of use									
	Pretest					Post-test 2				
	n	Never	Rarely	Frequently	Always	n	Never	Rarely	Frequently	Always
18. ท่านใส่ถุงมือเวลาแทงเส้นเลือดดำให้ผู้ป่วย You wear gloves during performing venepuncture.	117	5 2.8%	53 29.9%	48 27.1%	**71** 40.1%	116	1 09%	17 14.7%	34 29.3%	**64** 55.2%
19. ท่านใส่ถุงมือเวลาใส่ท่อช่วยหายใจ You wear gloves during endotracheal intubation.	177	3 1.6%	15 8.4%	20 11.2%	**139** 78.5%	116	1 0.9%	1 0.9%	7 6.0%	**107** 92.2%
20. ท่านถอดถุงมือเวลาถอดท่อช่วยหายใจ You wear gloves during endotracheal extubation.	117	3 1.6%	7 3.9%	15 8.4%	**152** 85.8%	116	1 0.9%	1 0.9%	3 2.6%	**111** 95.7%
21. ท่านใส่ถุงมือเวลาดูดเสมหะ You wear gloves during suctional of salivation.	176	5 2.8%	6 3.4%	14 7.9%	**151** 85.7%	116	2 1.7%	1 0.9%	4 3.4%	**109** 94.0%
22. ท่านล้างมือหลังจากสัมผัสผู้ป่วยแต่ละราย You wash your hands after contact each patient.	177	3 1.6%	6 3.3%	35 19.7%	**133** 75.1%	166	0 0%	2 1.7%	29 25.0%	**85** 73.3%
23. ท่านปิดปลอกเข็ม (recap) ก่อนทิ้งลงกล่องทิ้งเข็ม You recap before disposal of used needles.	175	34 19.4%	39 22.2%	29 16.5%	**73** 41.7%	115	31 26.7%	28 24.1%	16 13.8%	**40** 34.5%
24. ท่านใช้ syringe อันเดียวสำหรับผู้ป่วยมากกว่า 1 ราย You reuse syringe for more than one patient.	175	**97** 55.4%	40 22.8%	29 16.5%	9 5.1%	116	6 5.2%	15 12.9%	30 25.9%	**65** 56.0%
25. ท่านสวมแว่นตาเวลาดมยาสลบ You wear glass during giving general anesthesia.	176	**73** 41.4%	68 38.6%	10 5.6%	25 14.2%	116	35 30.2%	**47** 40.5%	13 11.2%	21 18.1%

Bold numbers indicate the most frequenty reported (mode)

Table 4. Disinfection or sterilization of laryngoscope blades.

Method	Pretest 1		Post test 1	
	Total number of respondents	%	Total number of respondents	%
Rinse with water	176	9.09	116	15.5
Soap and water	176	67.0	116	76.7
70% alcohol	175	66.8	116	81.9
Drop in disinfectant	176	35.7	116	38.8
Boil or autoclave	176	0.5	116	0.9

of anesthesiology practice in 1995, Tait AR reported that knowledge of universal precautions was associated with good hygienic practice[12].

From the demographic characteristics of the respondents from a total of 177 completed questionnaires both pretest and post test 1 the response rate was 90.76 per cent, 15.3 per cent were MD anesthesiologists, 84.7 per cent were nurse anesthetists, 92.1 per cent were female, and 73.4 per cent worked in the Ministry of Public Health. The respondents came from Bangkok, central area, the south, north-eastern, and the eastern region of Thailand at the rate of 29.4 per cent, 21.5 per cent, 14.7 per cent, 13.6 per cent, 11.3 per cent and 9.6 per cent respectively. These data were compared favorably with the demographics of Thai anesthesia personnel as a whole and samples of the respondents who answered the questionnaires of knowledge, attitude and practice related to HIV at the annual scientific congress of the Royal College of Anesthesiologists of Thailand in 1991 and 1994[4,13].

After 2 days of seminar including lectures, panel discussion, symposium and small groups discussion on epidemiology, basic knowledge, symptoms and signs, diagnosis, treatment and various subspecialties, the mean scores (standard deviation) of knowledge (12 numbers in questionnaires) from pretest and post test 1 were 7.95 (0.98) *vs* 9.5 (0.78), which was statistically significant by paired *t*-test $P < 0.001$. The respondents could answer the questionnaire numbers 1, 2, 4, 6, 7, 8, 11 and 12 correctly with statistically significant increasing rate by Mc Nemar Chi-square test, $p < 0.05$. After the seminars the rates of correctly answered questionnaires numbered 3, 5, 9 and 10 were not significantly changed. All of these questionnaires were knowledge about HIV transmission. This result showed that education could improve some knowledge among anesthesia personnel.

For the epidemiological data it is interesting that 18.1 per cent of the respondents in the pre-

test had a history of needle stick injury within 3 months. The risk of contacting HIV from needlestick exposure to an HIV-positive patient is approximately 1 in 200 (0.5 %) which is interpreted as a low risk when compared to other infectious agents such as hepatitis B[14,15]. Buergler JM et al reported that the calculated range for occupational risk of HIV infection for an anesthesiologist over a 30-year period (assuming there is no change in HIV prevalence or benefit from protective measures) was 0.05 per cent to 4.50 per cent[16] and the 1-year risk of needlestick-acquired HIV infection for an anesthesiologist ranged from 0.002 per cent to 0.129 per cent. Reduction of this risk for anesthesia personnel requires strategies to eliminate or reduce needlestick injury specifically to the practice of anesthesia.

From questionnaires about attitude, the respondents changed their attitudes between pretest and post test 1 with statistically significant difference ($p < 0.05$) for 2 out of 5 questionnaires. Percentage of the respondents who agreed with special health center for HIV positive cases changed from 66.1 per cent to 38.4 per cent ($p < 0.05$). The percentage of respondents who thought of changing to other jobs with a lower risk of HIV transmission was 30.5 per cent to 16.9 per cent ($p < 0.05$). Although not statistically significant different, it is interesting that two-thirds of the respondents agreed with a law forbidding HIV infected women to bear a child.

Four months after the seminar we sent the post test 2 questionnaires to all the respondents of pretest and post test 1 twice, asking them to reply only once. All questions were to be completed anonymously. Completed questionnaires were received from 116 anesthesia personnel, indicating a response rate of 65.53 per cent. The data about behaviour during anesthesia practice in Table 3 shows that the most frequently reported response (mode) in the majority of questions revealed the same mode in both pretest and post test 2 from questions 18-23 (75 % of questions about behaviour). We did not use the inferential statistics for this part of the questionnaires because it was designed to be completed anonymously and it would lose the sensitivity to use the statistics for matched or paired categorial data as Mc Nemar Chi-square. Despite a rather high response rate of 95.53 per cent by mail compared with the response rate of 44 per cent in a survey of anesthesiology practice by Tact AR, we could not predict or estimate the response from the non-respondents, therefore we used descriptive statistics for questionnaires about behaviour during anesthesia practice. The mode of response about re-using syringes for more than one patient was 22.8 per cent (40 out of 175 respondents) *versus* 56.0 per cent (65 out of 116 respondents), which revealed that answering questionnaires anonymously could prevent self-report bias by reducing the potential for respondents to intentionally report untrue behaviours. At least one-third of the respondents admitted recapping before disposal of used needles. Jagger et al found one third of needlestick injuries due to recapping of needles[17]. Berry AJ suggested that strategies to reduce occupational transmission of blood-borne pathogens to anesthesia personnel through needlestick injuries should be directed toward finding alternate techniques or needleless or protected needle devices in the practice of anesthesiology[18].

Wong et al reported that universal precautions were effective in reducing the risk of exposures among physicians on a medical service[19]. From our study, although the most common mode of wearing gloves during anesthesia was always practiced, the results in Table 3 show that universal precautions were not universally followed which was similar to the study by Carrington KR et al[11].

In conclusion, this study revealed that universal precautions were frequently used among Thai anesthesia personnel but not universally followed. Compliance with universal precautions may be possible but require a firm visible commitment by the clinical and administrative leadership and ongoing educational program until universal precautions too become routine. Although a one-time active educational program may improve knowledge and partly improve attitude, changing of behaviour needs continual education and appropriate training. We look forward to studies of the effectiveness of preventive measures for reducing the risk of HIV infection and development of practical guidelines for more complete compliance with precautional procedures and, ultimately, for the safety of both patients and anesthesia personnel.

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ผลของการสัมมนาระดับชาติเรื่องเอดส์กับวิสัญญีวิทยา ต่อความรู้ เจตคติ และพฤติกรรมเกี่ยวกับเชื้อเอ็ชไอวีของบุคลากรวิสัญญี

สมรัตน์ จารุลักษณานันท์, พ.บ., รัชฎา มิคะเสน, พ.บ.*,*
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ในการสัมมนาระดับชาติเรื่อง เอดส์กับวิสัญญีวิทยา ซึ่งจุฬาลงกรณ์มหาวิทยาลัย ร่วมกับราชวิทยาลัยวิสัญญี-แพทย์แห่งประเทศไทย, กระทรวงสาธารณสุข และสภากาชาดไทยจัดขึ้น การสัมมนาระยะเวลา 2 วัน ประกอบด้วยการอภิปราย การอภิปรายหมู่ ตลอดจนการประชุมกลุ่มย่อยโดยมีวิทยากรให้ความรู้เกี่ยวกับเชื้อเอ็ชไอวี และโรคเอดส์ ตั้งแต่ระดับความรู้พื้นฐาน อาการ และอาการแสดงทางคลินิก การวินิจฉัย การรักษา ตลอดจนความรู้ด้านอายุรศาสตร์ ศัลยศาสตร์ วิสัญญีวิทยา รังสีวิทยา กุมารเวชศาสตร์ จักษุวิทยา และจิตเวช ก่อนการสัมมนาผู้เข้าร่วมสัมมนา 195 คน ได้รับการแจกแบบสอบถามฉบับแรกเกี่ยวกับความรู้ เจตคติ และพฤติกรรมอันเกี่ยวกับเอ็ชไอวี หลังจากการสัมมนาผู้เข้าร่วมสัมมนาตอบแบบสอบถามความรู้ และเจตคติกลับมา 177 ราย (ร้อยละ 90.76%) หลังจากการสัมมนาแล้ว 4 เดือน ได้ส่งแบบสอบถามไปยังผู้เข้าร่วมสัมมนา 2 ครั้ง ให้ตอบกลับเกี่ยวกับด้านพฤติกรรมในการปฏิบัติงาน โดยแบบสอบถามฉบับที่ 3 นี้ไม่มีระบุชื่อหรือเครื่องหมายว่าผู้เข้าร่วมสัมมนารายใดเป็นผู้ตอบ ผลการศึกษาพบว่าเกี่ยวกับความรู้เปรียบเทียบระหว่างก่อนเข้าสัมมนาและหลังเข้าสัมมนา ในจำนวน 12 ข้อ ผู้ตอบได้คะแนนเฉลี่ยเพิ่มขึ้นจาก 7.95 (0.98) เป็น 9.5 (0.78), $p < 0.001$ โดยคำถามเกี่ยวกับความรู้ 8 ใน 12 ข้อ ผู้ตอบสามารถตอบถูกได้เพิ่มขึ้นโดย Mc Nemar Chi-square ค่า $p < 0.05$ เกี่ยวกับเจตคติหลังการสัมมนาเทียบกับก่อนสัมมนา ผู้เข้าร่วมสัมมนาเปลี่ยนแปลงเจตคติอย่างมีนัยสำคัญทางสถิติ $p < 0.05$ 2 ใน 5 ข้อ (ร้อยละ 40)

หลังการสัมมนา 4 เดือน ผู้ตอบแบบสอบถามแบบไม่ระบุชื่อ 116 ราย (ร้อยละ 65.5%) พบว่าแนวทางปฏิบัติงานแบบ universal precaution ยังมิได้ปฏิบัติอย่างเคร่งครัดที่น่าสนใจ ได้แก่ ร้อยละ 56 ของผู้ตอบแบบสอบถามนิรนามยอมรับว่าใช้หลอดฉีดยาหนึ่งอันสำหรับให้ยาผู้ป่วยมากกว่า 1 ราย เทียบกับร้อยละ 22.8 ของผู้ตอบแบบสอบถามก่อนเข้าสัมมนาตอบว่าไม่เคยใช้หลอดฉีดยาให้คนไข้มากกว่า 1 ราย จะเห็นได้ว่าการให้การศึกษาเฉพาะครั้ง ได้แก่ การเข้าร่วมสัมมนา สามารถเพิ่มพูนความรู้แก่บุคลากรวิสัญญีเกี่ยวกับเอ็ชไอวีได้ และสามารถเปลี่ยนเจตคติได้เพียงบางส่วน แต่ไม่สามารถเปลี่ยนพฤติกรรมระหว่างปฏิบัติงานด้านวิสัญญี การเปลี่ยนแปลงด้านพฤติกรรมในการปฏิบัติงานของบุคลากรต้องการระบบการศึกษาอย่างต่อเนื่อง

คำสำคัญ : เอดส์, วิสัญญีวิทยา, ความรู้, เจตคติ, พฤติกรรม, บุคลากร

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