

# Assessment of Knowledge, Attitudes, Beliefs and Practices among Doctors, Nurses and Other Allied Health Practitioners in Makati Medical Center with Regards to the Care of Patients with Human Immunodeficiency Virus and Acquired Immunodeficiency Syndrome (HIV/AIDS): A Descriptive Cross-Sectional Study

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## Abstract

**Introduction:** Human immunodeficiency virus infection (HIV) and Acquired Immunodeficiency Syndrome (AIDS) prevalence has been increasing for the past years in the Philippines since the early 1980s. The health care team which is comprised of doctors, nurses, pharmacists, medical technologists, and other allied health practitioners is the front liner in the care and management of such patients afflicted with the disease.

**Methods:** This descriptive cross-sectional study assessed the knowledge, attitudes, beliefs, and practices among the health workers in Makati Medical Center. A questionnaire based on the 1988 WHO Knowledge, Attitudes, Beliefs, and Practices (KABP) of AIDS survey was used. It was sent to 307 health workers selected by cluster sampling.

**Results:** Based on the survey, sources of information among participants regarding HIV/AIDS were quite diverse; books and journals being the most common. The majority of the participants demonstrated satisfactory levels of awareness regarding HIV/AIDS and its mode of transmission; however, a small percentage of the respondents were found to have a misconception that there is a vaccine available for HIV/AIDS and that insect bites and sharing of utensils can transmit the virus. Some of the respondents also do not know much about transmission routes and there are a few who are not willing to care for and live with patients with HIV. The majority however have a positive attitude towards people living with HIV/AIDS.

**Conclusion:** Most of the respondents of this research have good knowledge regarding the disease process and its mode of transmission. At the same time, the majority of the respondents also have a positive attitude and acceptance towards people living with HIV/AIDS. The data from the study can be used to develop interventions to decrease if not eliminate HIV stigma and discrimination. Interventions can include educating health care workers by utilizing all possible modalities to have a broader reach.

**Keywords:** HIV/AIDS, Knowledge, Attitude, Practices, Healthcare workers

## Introduction

For many years, the global epidemic of acquired immunodeficiency syndrome (AIDS) has been a big public concern. According to the World Health Organization, it has been estimated that 36.8 million individuals were affected by the Human

Immunodeficiency Virus (HIV) in 2017; the majority of whom can be found in Africa.<sup>1,8</sup> An estimate of 3.5 million people is affected in the South East Asian region.<sup>1</sup>

In the Philippines, the first case of HIV was documented in 1984.<sup>4,5</sup> For the succeeding two decades, the estimated prevalence of HIV/AIDS has always been low. However, the UNAIDS in 2017 estimated that at least 68,000 individuals were living with HIV. The Philippines has been described by the WHO as one of the countries

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with the fastest growing epidemic of HIV/AIDS in the Asia Pacific region.<sup>2,3</sup>

An important factor that can be a cause in the rise of cases seen in developing countries such as the Philippines would be the lack of public education on how the infection can be transmitted and prevented.<sup>3,4</sup> Because of this, managing such complex disease such as AIDS necessitates a collaborative effort between the doctors, other health practitioners, the community and the patient to ensure good patient care.<sup>8</sup>

Since healthcare workers are the first line in giving care and treatment to such patients, it is important that they are competent and adept in handling these kinds of patients. There have been various studies that have been done internationally regarding assessment of knowledge, attitudes, beliefs and practices among health workers regarding HIV/AIDS, but it was noted that there is none in our local setting. Thus, this study aims to assess the knowledge, attitudes, beliefs and practices of the doctors, nurses and other allied health workers in our institution regarding HIV/AIDS.

### Methodology

A descriptive cross-sectional study was done which spanned 12 months starting October 2018 to September 2019. This was done in Makati Medical Center which is a tertiary care hospital with a 469- bed capacity with various health workers. Among these health workers are doctors, nurses, medical technologists, pharmacists, and other allied health workers who act as front liners in managing simple and complex cases of patients who are admitted in the said institution. According to the Office of Human Resources of the Makati Medical Center, there are 241 residents and fellows, 893 nurses, 222 nursing aides/orderlies, 90 medical technologists, and 76 pharmacists which bring the total population size to 1599 people. Three-hundred seven subjects were needed in this study as calculated using the Raosoft sample size calculator. The total number of participants in the study was divided into five sectors and was evenly distributed among the different sectors; hence 61 participants were from each sector: residents and fellows, nurses, nursing aides/orderlies, medical technologists, and pharmacists. All members of the house staff, starting from the fellows, medical residents, nurses, and other allied health practitioners such as nurse aides, orderlies, pharmacists, and medical technologists who were directly involved in the care of individuals living with HIV/AIDS were screened for participation in the study. All healthcare workers employed in Makati Medical Center who are 18 years old and above, who are able to read and understand the informed consent, and who agreed to participate were considered in the study.

A written informed consent using a form approved by the Institutional Review Board (IRB) was secured prior to including the participants in the study. Once informed consent was taken, a survey questionnaire based on the WHO's Knowledge, Attitudes, Beliefs, and Practices (KABP) of AIDS survey of 1988 was sent to all participants after some modifications were made based on the norms

**Table I. Patient Demographics (n=307)**

	Mean $\pm$ SD; Frequency (%)
Age	28.5 $\pm$ 7.1
Gender	
Male	85 (30.9)
Female	190 (69.1)
Position	
Doctor	61 (20.0)
Nurse	61 (20.0)
Pharmacist	61 (20.0)
Medical Technologists	61 (20.0)
Others	61 (20.0)
Nurse Aide	30 (49.2)
Orderly	18 (29.5)
Ward Clerk	13 (21.3)

of the Filipino people. The questionnaire included the demographic characteristics of the research respondents. The main questionnaire was divided into four parts: sources of information regarding HIV/AIDS, general knowledge of HIV/AIDS (definition, causative agents, signs and symptoms, complications), beliefs about the transmission of the human immunodeficiency virus and attitudes and practices toward patients living with HIV/AIDS. The participants were asked to mark their answers to these questions. Some of the questions could have more than one answer. Answers among the five participant groups were also compared to each other using Chi-Square test or Fischer's Exact Test, whichever was applicable. All *p-values* <0.05 were considered statistically significant.

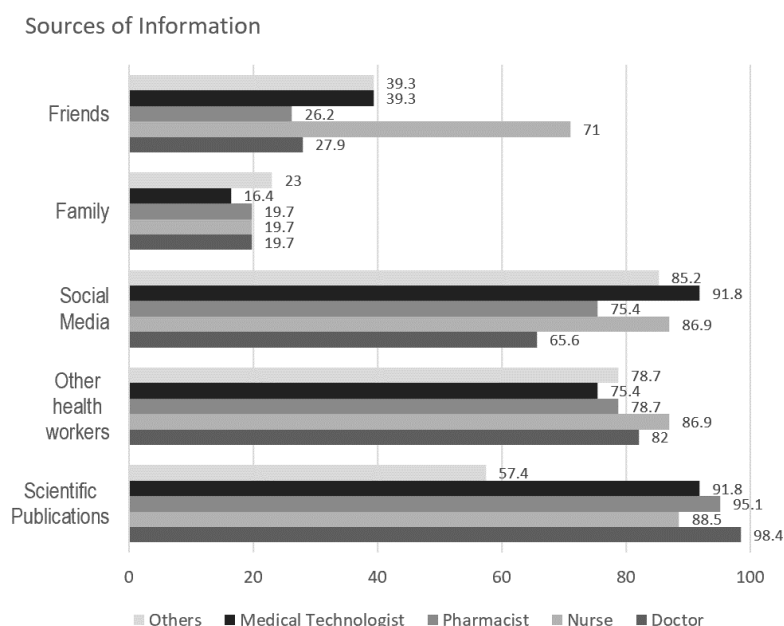
### Results

All the 307 participants that were invited for the study completed the survey. It was noted that some of the respondents failed to put their age and their gender in the questionnaire.

The ages of the participants were all above 18 years old with the mean age of 29 years old (*Table I*). Eighty-five of the respondents were males and 190 were females. Thirty-two of the respondents failed to put on their age and gender on the questionnaire.

Sources of information of the doctors and other allied health workers were quite diverse (*Figure 1*). Most of the doctors, nurses and pharmacists said that books, literature and journals were their primary source of information about the disease followed by sources from other health workers, mass media, friends and their family respectively. For the medical technologists, books, literature and journals were also their major sources of information from the disease followed by mass media, other health workers, friends and family. For the orderly, ward clerks and nurse aides, the major sources of information came from the mass media, followed by sources from other health workers, books, literature and journals, from friends and from family.

In general, the majority of the respondents of this study said that AIDS is a contagious disease (79.7%) which was caused by the human immunodeficiency virus (94.1%)



**Figure 1: Sources of HIV/AIDS Information of Doctors and Other Allied Health Workers in Makati Medical Center (n=307)**

**Table II: Knowledge Regarding HIV/AIDS of Health Workers in Makati Medical Center (n=307)**

Category	Yes	No	I Don't Know
Acquired Human Immunodeficiency Syndrome is a contagious disease	243 (79.7)	59 (19.3)	3 (1.0)
HIV is the causative agent of AIDS	287 (94.1)	17 (5.6)	1 (0.3)
People are vulnerable to severe infections once afflicted with HIV	290 (95.1)	14 (4.6)	1 (0.3)
HIV/AIDS can be cured	40 (13.2)	256 (84.2)	8 (2.6)
There is a vaccine for HIV	34 (11.3)	238 (79.1)	29 (9.6)
Once infected, a person with the virus will not have a normal life expectancy even with adequate treatment	68 (22.3)	224 (73.4)	13 (4.3)

(Table II). Majority said that people living with HIV/AIDS are prone to severe infections once afflicted with the disease (95.1%). Most of the respondents (79%) believed that there was no available vaccine for the said disease and that 73.4% of the respondents said that they did not believe that once infected, people living with HIV/AIDS will have a normal life expectancy even with adequate treatment.

There is no significant difference between the answers of the different groups of respondents in the first four items of the questionnaire (Table III). However, it was noted that in 21.7% of the nursing aides, orderly and ward clerks

believed that there is a vaccine available for HIV/AIDS which was significantly different from the other groups. There is also a significantly different variable awareness of the groups regarding the belief that people with HIV/AIDS can have a normal life expectancy if adequately treated

Table III shows the answers of the respondents of the study about modes of transmission of the human immunodeficiency virus. Again, majority of our respondents believed that accidental contact of blood, other body fluids of an infected person to broken skin, eyes and other mucus membranes (90.8%), getting blood from an infected individual (97.4%), needle prick or by using syringes used by an infected person (97%), mother to fetus transmission (93.8%) and sexual contact (100%) can transmit HIV. A higher percentage of the study population also believed that being in close proximity to a person infected with HIV (99.7%), swimming in a public pool or using a public toilet (99.3%), insect bites (96.4%), kissing or sharing utensils with an infected person (93.1%) and holding or hugging an infected person (99.3%) cannot transmit the virus.

There is no statistically significant difference between the answers of the respondents of this study regarding the transmission of HIV/AIDS except in the following questions: mother to fetus transmission and insect bites.

The attitudes of the majority of individuals who participated in this study towards patients living with

HIV/AIDS are quite positive as shown in Table IV. Again, majority of the respondents of this study said that they are willing to care for patients with HIV/AIDS (91.1%), they are willing to work with persons living with HIV/AIDS (91.5%), they are willing to live with persons with HIV/AIDS (72.5%), they are willing to be friends with persons with HIV/AIDS (94.4%) and that majority do not believe that persons living with HIV/AIDS should be isolated (86.9%).

The responses to all the items on this part of the questionnaire of the study population are quite diverse and have a statistically significant difference.

**Table III. Knowledge Regarding HIV/AIDS Among the Different Groups of Health Workers in Makati Medical Center (n=307)**

Category	Doctor	Nurse	Pharmacist	Medical Technologist	Others	p – value
Acquired Human Immunodeficiency Syndrome is a contagious disease	52 (85.2)	44 (72.1)	45 (73.8)	49 (80.3)	53 (86.9)	0.073 <sup>b</sup>
HIV is the causative agent of AIDS	59 (96.7)	54 (88.5)	56 (91.8)	58 (95.1)	60 (98.4)	0.130 <sup>b</sup>
People are vulnerable to severe infections once afflicted with HIV	56 (91.8)	59 (96.7)	60 (98.4)	56 (91.8)	59 (96.7)	0.220 <sup>b</sup>
HIV/AIDS can be cured	13 (21.3)	8 (13.1)	7 (11.7)	8 (13.1)	4 (6.6)	0.326 <sup>b</sup>
There is a vaccine for HIV	7 (11.7)	5 (9.3)	5 (8.3)	4 (6.6)	13 (21.7)	<b>0.046<sup>a</sup></b>
Once infected, a person infected with the virus will not have a normal life-expectancy even with adequate treatment	10 (16.4)	7 (11.5)	19 (31.2)	14 (22.0)	18 (29.5)	<b>0.001<sup>b</sup></b>

Presented as Frequency (%) a= Chi-Square Test; b = Fischer's Exact

**Table IV. Beliefs of Health Workers According to Sources of HIV Transmission**

Category	Yes	No
Sexual contact	100	0
Mother to fetus transmission	93.8	6.2
Needle prick of by using used syringes by an infected person	97	3
Blood transfusion from an infected individual	97.4	2.6
Accidental contact of blood, other body fluids of an infected person to broken skin, eyes and other mucus membranes	90.8	9.2
Holding or hugging a person infected with AIDS	0.7	99.3
Kissing or sharing eating utensils with a person Infected with AIDS	6.9	93.1
Insect bites	3.6	96.4
Swimming in a public pool or using a public toilet	0.7	99.3
Being in a close proximity with a person infected with AIDS	0.3	99.7

**Table V. Beliefs Regarding the Transmission of HIV Among the Different Groups of Health Workers in Makati Medical Center (n=307)**

Category	Doctor	Nurse	Pharmacist	Medical Technologist	Others	P – value
Sexual contact	61 (100.0)	61 (100.0)	61 (100.0)	61 (100.0)	61 (100.0)	-
Mother to fetus transmission (vertical transmission)	61 (100.0)	59 (96.7)	58 (95.1)	58 (95.1)	50 (82.0)	<b>0.001<sup>b</sup></b>
Needle Prick or by using used syringes by an infected person	59 (96.7)	60 (98.4)	59 (96.7)	60 (98.4)	58 (95.1)	0.939 <sup>b</sup>
Blood transfusion from an infected individual	60 (98.4)	60 (98.4)	61 (100.0)	60 (98.4)	56 (91.8)	0.089 <sup>b</sup>
Accidental contact of blood, other body fluids of an infected person to broken skin, eyes and other mucus membranes	54 (88.5)	57 (93.4)	57 (93.4)	56 (91.8)	53 (86.9)	0.628 <sup>a</sup>
Holding or hugging a person infected with AIDS	0 (0.0)	0 (0.0)	0 (0.0)	2 (3.3)	0 (0.0)	0.197 <sup>b</sup>
Kissing or sharing eating utensils with a person Infected with AIDS	2 (3.3)	2 (3.3)	5 (8.2)	8 (13.1)	4 (6.6)	0.211 <sup>b</sup>
Insect bites	0 (0.0)	2 (3.3)	1 (1.6)	1 (1.6)	7 (11.5)	<b>0.011<sup>b</sup></b>
Swimming in a public pool or using a public toilet	0 (0.0)	0 (0.0)	1 (1.6)	0 (0.0)	1 (1.6)	1.000 <sup>b</sup>
Being in a close proximity with a person infected with HIV	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (1.6)	1.000 <sup>b</sup>

Presented as Frequency (%) <sup>a</sup>Chi-Square Test; <sup>b</sup>Fischer's Exact Test

## Discussion

We note in this study that books, literatures and journals were the primary source of information regarding HIV/AIDS among the participants of this study. This is not a surprising finding since our subjects are health workers

who attained a degree in the medical sciences. In contrast to two studies done in Japan and Yemen among students, mass media play the biggest role in propagating awareness of HIV/AIDS among lay persons.<sup>6,7</sup> Mass media can be an excellent tool in propagating awareness among lay persons regarding

**Table VI. Attitudes and Practices Towards Persons Living with HIV/AIDS of Health Workers in Makati Medical Center (n=307)**

Category	Yes	No	I Don't Know
I am willing to care for persons living with HIV	277 (91.1)	10 (3.3)	17 (5.6)
I am willing to work with persons living with HIV	279 (91.5)	14 (4.6)	12 (3.9)
I am willing to live with persons living with HIV	221 (72.5)	39 (12.8)	45 (14.8)
I am willing to be friends with persons living with HIV	288 (94.4)	5 (1.6)	12 (3.9)
Persons living with HIV should be isolated	31 (10.2)	265 (86.9)	9 (2.9)

**Table VII. Attitudes and Practices Towards Persons Living with HIV/AIDS of Different Groups of Health Workers in Makati Medical Center (n=307)**

Category	Doctor	Nurse	Pharmacist	Medical Technologist	Others	P – value
I am willing to care for persons living with Human Immunodeficiency Virus	59 (98.3)	60 (98.4)	57 (93.4)	54 (88.5)	47 (77.0)	0.002 <sup>b</sup>
I am willing to work with persons living with Human Immunodeficiency Virus	61 (100.0)	60 (98.4)	59 (96.7)	51 (83.6)	48 (78.7)	<0.0001 <sup>b</sup>
I am willing to live with persons living with Human Immunodeficiency Virus	51 (83.6)	51 (83.6)	47 (77.0)	39 (63.9)	33 (54.1)	0.003 <sup>b</sup>
I am willing to be friends with persons living with Human Immunodeficiency Virus	61 (100.0)	58 (95.1)	59 (96.7)	58 (95.1)	52 (85.2)	0.046 <sup>b</sup>
Persons living with Human Immunodeficiency Virus should be isolated	3 (4.9)	8 (13.1)	2 (3.3)	7 (11.5)	11 (18.0)	0.013 <sup>b</sup>

Presented as Frequency (%) a= Chi-Square Test; b = Fischer's Exact

HIV/AIDS. One striking finding that was noted is that the family, which is considered as the basic unit of society and should have been one of the primary sources of information regarding the disease, is the least source of information of HIV/AIDS among the study group. This may be due to the fact that the Philippines is still considered as a conservative society and most parents are hesitant to discuss HIV/AIDS with their children.<sup>5</sup> A similar study in Japan also noted that among Japanese female college students, the family is the least source of information among them and this finding suggested the importance of involving the family, especially the parents in spearheading the education of HIV/AIDS to help counter false perception or fear against people living with HIV/AIDS.<sup>6</sup>

Most of our participants exhibited good knowledge when it comes to HIV/AIDS. However, there were still misconceptions noted such as the existence of a vaccine for HIV/AIDS wherein 11.3% of the total population answered "Yes" and the perception that persons living with HIV/AIDS cannot have a normal life expectancy even if adequately treated for which 22.3% of the total population also answered "Yes."

Our participants also were quite adept with regard to knowledge about the modes of transmission of the virus. All our participants know that the virus can be transmitted via sexual contact and almost all believe that needle prick, vertical and horizontal transmission can transmit the virus. Nonetheless, there is still quite a minority who have misconceptions regarding the mode of transmission of HIV/AIDS. Almost 7% of the total population said that HIV/AIDS can be transmitted by

kissing or by using the utensils used by a person living with HIV/AIDS. This premise was noted to be highest among medical technologists. In addition, 6.9% of the total population said that insect bites can transmit the virus and this premise was noted to be highest among the ward clerks, orderly, and nursing aide group. Though quite a minority, these premises can provoke discrimination against a person living with HIV/AIDS.<sup>6</sup>

The attitude of most of the health workers who participated in the survey was quite positive. However, it was striking to note that the percentage of those who answered otherwise is also notable. More than 10% (12.8%) of our respondents were not willing to live with a person living with HIV/AIDS while 14.8% of them were unsure. A similar number (10.2%) actually said that persons with HIV/AIDS should be isolated. There is an inconsistency between the knowledge and attitudes of our respondents. Though the participants exemplified a higher degree of knowledge regarding HIV/AIDS, a high number of them were quite unsure regarding their approach and attitudes towards persons living with HIV/AIDS.

This study has quite a few limitations. First, the study was confined among health workers in Makati Medical Center wherein the population is limited and is not representative of the public population of the Philippines. The authors recommend that this study be done in the community especially those in the rural areas so that we can assess the public awareness regarding the disease and its devastating complications if not diagnosed and treated well.

## Conclusion

In conclusion, the majority of the respondents of this research have good knowledge regarding the disease process and its mode of transmission. Quite a majority of the respondents also have a positive attitude and acceptance toward people living with HIV/AIDS.

**Conflict of Interest.** The authors of this study declare no potential or competing conflict of interests to declare.

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## QUESTIONNAIRE

### **Assessment of Knowledge, Attitudes, Beliefs and Practices Among Doctors, Nurses and Other Allied Health Practitioners in Makati Medical Center with Regard to the Care of Patients with Human Immunodeficiency Virus and Acquired Immunodeficiency Syndrome: A Descriptive Cross-Sectional Study**

Principal Investigator: **WAIVA ANN M. GALANG - DE LEON, MD.**

The study aims to assess the knowledge, attitudes, beliefs and practices of the doctors, nurses and other allied health workers regarding Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS).

This is a 13-number questionnaire designed based on the World Health Organization's Knowledge, Attitudes, Beliefs and Practices (KABP) of Acquired Immunodeficiency Syndrome survey of 1988 and other available literatures that was modified based on the norms of the Filipino people and is divided into 4 parts: sources of information regarding Human Immunodeficiency Virus and Acquired Immunodeficiency Syndrome, General knowledge of Human Immunodeficiency Syndrome and Acquired Immunodeficiency Virus (definition, causative agents, signs and symptoms, complications), Beliefs about the transmission of the human immunodeficiency virus and attitudes toward patients living with HIV/AIDS.

Name of Respondent (optional):

Age:                      Gender:

Educational Attainment

- Fellow
- Resident
- Nurse
- Nurse Aide
- Orderly
- Ward Clerk
- Pharmacist

PART 1: Sources of information regarding HIV/AIDS. (You may tick several boxes that may be applicable to you.)

- Books, Literature, Journals
- From other health workers
- Mass Media (Newspapers, Magazines, Radio, Internet)
- For family
- From friends

PART 2: General Knowledge of Human Immunodeficiency Syndrome and Acquired Immunodeficiency Virus

1. Acquired Human Immunodeficiency Syndrome is a contagious disease
  - Yes
  - No
  - I don't know
2. HIV is the causative agent of AIDS
  - Yes
  - No
  - I don't know
3. People are vulnerable to severe infections once afflicted with HIV
  - Yes
  - No
  - I don't know
4. HIV/AIDS can be cured
  - Yes
  - No
  - I don't know
5. There is a vaccine for HIV
  - Yes
  - No
  - I don't know
6. Once infected, a person infected with the virus will not have a normal life expectancy even with adequate treatment
  - Yes
  - No
  - I don't know

## PART 3: Beliefs about the transmission of the human immunodeficiency virus

People can get the human immunodeficiency virus through the following routes. (Please tick all boxes that you think is applicable. You can tick more than 1 answer.)

- Sexual contact
- Mother to fetus transmission (vertical transmission)
- Needle Prick or by using used syringes by an infected person
- Blood transfusion from an infected individual
- Accidental contact of blood, other body fluids of an infected person to broken skin, eyes and other mucus membranes
- Holding or hugging a person infected with Human Immunodeficiency Syndrome
- Kissing or sharing eating utensils with a person Infected with Human Immunodeficiency Syndrome
- Insect bites
- Swimming in a public pool or using a public toilet
- Being in a close proximity with a person infected with Human Immunodeficiency Syndrome

## PART 4: Attitudes towards persons living with Human Immunodeficiency Virus

1. I am willing to care for persons living with Human Immunodeficiency Virus
  - Yes
  - No
  - I don't know
2. I am willing to work with persons living with Human Immunodeficiency Virus
  - Yes
  - No
  - I don't know
3. I am willing to live with persons living with Human Immunodeficiency Virus
  - Yes
  - No
  - I don't know
4. I am willing to be friends with persons living with Human Immunodeficiency Virus
  - Yes
  - No
  - I don't know
5. Persons living with Human Immunodeficiency Virus should be isolated
  - Yes
  - No
  - I don't know