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ASSESSING PATIENTS' KNOWLEDGE, ATTITUDE AND PRACTICES ON HEALTHCARE ASSOCIATED INFECTIONS AT AJUMAKO HOSPITAL: GHANA

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ABSTRACT

Purpose: Healthcare associated infections (HAIs) remain one of the most important public health problems in many countries and Ghana is no exception. HAIs affect hundreds of millions patients globally. HAIs are among the five leading causes of death worldwide next to cardiovascular diseases, neoplasms, respiratory tract diseases, and infectious diseases. The purpose of this study was to assess the level of knowledge, attitudes and practices of patients on prevention of healthcare associated infections in a healthcare facility in Central Region, Ghana.

Methodology: A cross sectional study design was used in this study. Both convenience and purposive sampling techniques were used in the study to administer the questionnaire to patients who were visiting the health facility for a period of four weeks. Descriptive statistical analysis was used to present data as frequencies and percentages. On the other hand, multivariable regression analysis was employed to examine the relationship between variables in the dataset. Data were presented with tables. Adjusted odds ratios (aORs) at 95% confidence intervals (CIs) were used to present the results.

Results: The study showed that the overall level of knowledge of respondents on HAIs was high (54%). Most of the patients (61%) also had positive attitudes toward HAIs, and the practices of patients toward HAIs prevention were also good (57%). Civil/public servant had higher odds of having good knowledge on HAIs than those who are self-employed [aOR=2.1, 95% CI=1.43-3.39]. Two times visitors also had higher odds of having good knowledge on HAIs than new patients [aOR=2.37, 95% CI 1.21–4.63].

Unique contribution to theory, practice and policy: Majority of patients had high knowledge on HAIs with positive attitude and good practices toward prevention of HAIs. Health education on HAIs is recommended for all patients visiting healthcare facilities to help prevent such infections among the patients and health care workers.

Key words: *Knowledge, Attitudes, Practices, Healthcare Associated Infections, Ajumako District Hospital*

Background

Healthcare associated infections (HAIs) started in the later part of the 20th century where it was considered as a public health problem. The subject began to be publicized, discussed and planned, promoting the development of prevention and control actions in all healthcare facilities worldwide (Mello et al., 2009). HAIs are infections that patients get during admission. These infections usually manifest within 48 hours or more after hospital admission or 30 days after the person has been discharged (Ocran & Tagoe, 2014). These infections are associated with prolonged hospital stay, extra financial burden, increased morbidity and mortality, and increased antimicrobial resistance (Zhou et al., 2014). HAIs are among the five leading causes of death worldwide next to cardiovascular diseases, neoplasms, respiratory tract diseases, and infectious diseases (Girot, Garanhani, Guariente, & Cruz, 2013). The consequences of HAIs is mostly felt in countries that have poor resources have overburdened health care workers and a higher level of community acquired infection (Rothe, Schlaich, & Thompson, 2013). Despite the increasing antimicrobial resistance by most pathogenic microorganisms, only few new antimicrobial are being developed to fight these infections (Haque, Mainul, et al., 2020). HAIs affect hundreds of millions patients each year worldwide (WHO, 2016). Thus, out of 100 hospitalized patients at any given time, 7 of them in developed and 10 in developing countries acquire at least one healthcare associated infection (WHO, 2016). A prevalence survey conducted in 2002 under the auspices of the WHO in 55 hospitals of 14 countries estimated that, averagely, 8.7% of patients in hospitals are infected by HAIs (WHO, 2002). Again, according to a study conducted by Zaidi, Javed, Naz, & Mumtaz, (2016), 97 out of 333 patients in Hyderabad Sindh, Pakistan acquired HAIs in the course of receiving health care. According to Ricks (2007), one-third of healthcare associated infections that resulted in 92% deaths could have been prevented. A study by Tagoe, Baidoo, Dadzie, Tengey & Agede (2011) affirms that one third of HAIs are preventable and

about 90% of deaths that resulted from these infections could be prevented by adhering strictly to infection prevention and control guidelines. In South Africa, it is estimated that about 1 in 7 patients assessing healthcare in hospitals stand at high risk of getting a HAI (Brink et al, 2006). A study conducted in Ghana also estimated that the incidence of HAIs is approximately 152 000 out of 20.7 million people (US Census Bureau, 2004).

According to Nedelcu et al. (2020), inadequate knowledge level can contribute to a potential barrier to the prevention of HAIs in medical practice. However, despite the overwhelming rate of HAIs, there is paucity of literature regarding patients' awareness on HAIs. Awareness of patients on HAIs enable them to actively engage in the infection control and prevention measures than those who do not receive any information (Park & Seale, 2017). The hands play very important role in prevention of the transmission of HAIs. This can be achieved through appropriate hand hygiene. However, adhering to frequent hand washing is neglected in health care settings (Abduawahid, Mohammed, & Nife, 2020). Despite European and national recommendations of ensuring that patients have information on HAIs (Bo, Amprino, Dalmasso, & Zotti, 2017), there is little data available on patients receiving information from healthcare workers (HCWs) on HAIs in Ghana. According to Ottum et al. (2013). Little is known regarding patients' understanding and awareness of HAIs in many countries including Ghana. This study sought to assess the level of knowledge, attitudes and practices of patients on the prevention HAIs in a healthcare facility in the Central Region of Ghana.

Theoretical Framework

There are quite a number of theories or models that attempt to explain varieties of human behaviours by linking knowledge to attitudes and behaviour. The Health Belief Model (HBM) was adopted for the purpose of the current study.

The Health Belief Model was propounded by three United States social psychologists: Rosenstock, Hochbaum and Kegels in 1952. The model was later modified by Maiman in 1975. The HBM is a health specific social cognition model that was postulated to find out what was encouraging or discouraging people from participating in health related programs. Currently, the HBM has been adapted to explore a variety of health behaviours, and this including HAIs (Abraham, & Sheeran, 1994).

According to (Rosenstock, Strecher, & Becker, 1994), the model discusses the individual's actions to treat and prevent disease via consideration of four principal tenets:

1. The individual's perceived susceptibility to disease. It is the subjective perception of the risk the individual is at from a state or condition. This explains that an individual will seek preventive health services if he/she believes his/her susceptibility to a disease condition.

2. The individual's perception of severity of illness. This is the subjective evaluation of the seriousness of the outcomes associated with disease condition. It is believed that if a person is unable to perceive illness as serious, it would be unlikely to seek treatment or prevent the disease.
3. The individual's rational perception of benefits versus costs. This is the subjectively understood positive benefits of taking a health action in this case taking having goo knowledge, attitude and practices towards HAIs to offset a perceived threat. This perception will be influenced not only by specific proximal factors (such as washing of hands with soap and water or avoiding handshake), but an individual's overall health motivation. An individual will not take action to prevent HAIs unless the prevention of HAIs is perceived as having greater benefits than costs (economic, time and social).
4. The individual's cues to action. The HBM considers individuals promptness to take consistent preventive actions with an intention. The absence of cues to action will reduce the likelihood of prevention.

Research Questions

1. Do patients have knowledgeable on prevention of healthcare associated infections?
2. What are the attitudes of patients toward prevention of healthcare associated infections?
3. How do patients prevent themselves from acquiring healthcare associated infections?
4. What relationships exist between the socio-demographic characteristics of patients of and their knowledge on HAIs?

Materials and Methods

Study Setting and Population

A cross sectional study using institutional based method was conducted to assess knowledge, attitude, and practices of patients on HAIs at Ajumako District Hospital in the central region of Ghana in January, 2017. Ajumako is the capital of Ajumako Enyan Essiam District. The district is predominantly rural and covers an estimated land area of about 521.2 square kilometers and forms 5 percent of the total land area of Central Region. Ajumako share boundaries with the Assin districts (Assin North and Assin South) to the west, South by Effutu district, to the north-west by Asikuma- OdobenBrakwa and Gomoa West district to the east. Ajumako is about 40 kilometers North-east of the Cape Coast. According to Ghana's 2010 Population and Housing Census, Ajumako had a total population of about 5,399 people with female accounting for 53.6 percent. Ajumako District Hospital is a government health facility and the only hospital within the district.

Ethical clearance and Sampling Procedure.

The proposal to conduct the study was approved by the Institutional Review Board (IRB) of University of Cape Coast (UCC). Ethical clearance was obtained from the IRB, U.C.C. An official

permission was granted by the Ajumako District Hospital management team and also informed consent was sought from all study participants.

Both inpatients and outpatients who visited Ajumako District Hospital were used as the study population. Convenience and purposive sampling techniques were used to select respondents who were eighteen years of age and above for the study. Selection of participants was carried out for a period of four weeks to patients who visited the health facility.

To ensure accurate responses of participants on attitude and practices on HAIs during data collection, participants were given brief explanation of healthcare associated infections after answering questions on knowledge before proceeding to questions on attitude and practices. This was done to ensure that those who had little or no knowledge on HAIs get fair understanding so as to assess their real attitudes and practices on prevention of HAIs. In all, 345 patients were used for study.

Data Collection

Self-designed pretested structured questionnaire was used to collect data. The data collection instrument was pretested using 15 study participants (10 outpatients and 5 inpatients) at a different hospital, also in the central region of Ghana. The purpose was to assess effectiveness of instructions, effectiveness of data collection technique, the clarity of questions and time required to complete the questionnaire. Participants for the pilot study were asked to give their comments on the questionnaire applicability and validity after which related adjustments were made before using for the study. Five (5) Research assistants were trained to assist in data collection. Data was collected from the following areas within the hospital: out-patient department, casualty unit, male, female and maternity wards. The questionnaire was designed in four sections. Section A comprises demographic characteristics of respondents. Section B dealt with knowledge of patients on HAIs. Sections C and D dealt with attitude and practices of respondents on prevention of HAIs respectively. Seven knowledge questions were developed to assess respondents' knowledge on HAIs. Knowledge questions asked included the following: Have you ever heard of HAIs? Do you know that catheter-associated urinary tract infection is a type of HAIs? Do you think surgical site infection is a type of HAIs? Can venous catheter associated infection be a type of HAIs? Do you know that pneumonia is a type of HAIs? Have you ever been educated on HAIs in the course of receiving health care? Can any patient develop HAI in the course of receiving healthcare?

Data Management and Analysis

Each completed questionnaire was checked for accuracy and consistency in relation to responses to the items on the data collection instrument. The questionnaire was also checked for comprehensiveness of the responses. After editing, a template was developed and used to create a data analysis matrix on the computer, as well as code responses to the items on the instrument.

After coding, the data was then entered into the computer analysis matrix developed with the computer software, Statistical Package for the Social Services (SPSS) version 22. The data was cleaned and check for errors and consistency in responses. The first, second and third research questions were analysed using descriptive statistics of frequencies and percentages whilst the fourth research question on the association between the socio-demographic characteristics of respondents and knowledge on HAIs was analysed using multivariable regression analysis.

Firstly, a descriptive analysis of frequencies and percentages was performed for all the seven items under this research question. Finally, a composite of all the items was created and the knowledge of respondents on HAIs was grouped into 'high' and 'low'. Respondents with high knowledge were those with a minimum of four 'Yes' for all the items and respondents who had 0-3 'Yes' were classified as having 'low' knowledge. Participants attitude were also assessed using nine questions. Respondents with positive attitudes were those with 5-9 'Yes' for all the nine items and respondents who had 0-4 'Yes' were classified as having 'negative' attitudes towards healthcare associated infections. Practices of respondents toward prevention of healthcare associated infections was also assessed by five research questions. Their responses were grouped into 'Good' and 'Poor'. Respondents with good practices were those with 3-5 'Yes' for all the five items and respondents who had 0-2 'Yes' were classified as having 'Poor' practices on healthcare associated infections.

Results

Background Information of the Respondents

According to table 1, a total of 345 participants were involved in the study. A little above than half (183 (53.0%)) of the respondents were females. Majority, 43% (148) of the respondents were aged 18-30. With regards to the type of patient, most (290 (84.1)) were outpatients. With occupation, majority (73.8% (255)) were self-employed. Finally, about one – third (35.7% (123)) of the respondents had visited hospital two times for the past one year.

Table 1: Socio-Demographic Characteristics of Respondents

Variables	Frequency	Percentage
Gender		
Male	162	47.0
Female	183	53.0
Age		
18 – 30	148	42.9
31 – 40	80	23.2
41 – 50	78	22.6
51 – 60	39	11.3
Type of Patient		
Outpatient	290	84.1
Inpatient	55	15.9
Occupation		
Self-employed	255	73.8
Civil/Public servants	29	8.4
Students	61	17.8
Number of visit(s)		
First time	106	30.7
Two times	123	35.7
Three times	58	16.8

Four and above	58	16.8

Source: Field survey (2017)

Knowledge of Respondents about HAIs

From the study, about half (50.1% (173)) of the respondents had heard of HAIs. Again, majority (58.8% (203)) of the respondents knew that catheter-associated urinary tract infection is a type of HAIs. The results also show that majority (58.8% (203)) of the respondents thought surgical site infection is a type of HAIs. Furthermore, 60.6% (n = 209) of the respondents knew that venous catheter associated infection can be a type of HAIs but the remaining did not. Moreover, 41.2% (n = 142) of the respondents knew that pneumonia is a type of HAIs. Furthermore, more respondents, 58.8% (n = 203) had never been educated on HAIs in the course of receiving health care. Finally, 58.8% (n = 203) of the respondents knew that any patient can develop HAI in the course of receiving healthcare. Furthermore, the showed that a little more than half of the respondents (188) representing 54% had high knowledge on HAIs.

Attitude of Respondents towards prevention of HAIs

Majority of the respondents (58.3% (201)) indicated that they will not report to a healthcare facility with a disease they suspect they had in the course of seeking healthcare. Again, 58.8% (n = 203) of the respondents were of the view that they will seek healthcare at a different health different facility if they are told that they have contracted HAI in the course of seeking healthcare. Moreover, only a few number of respondents (n = 109) representing 31.6 were of the view that HAIs cannot be transmitted from one patient to another patient. The study also showed that, most (60.6% (209)) of the respondents indicated that HAIs can be transmitted from a healthcare worker to a patient. Again, greater percentage (81.4%) of the respondents thought that HAIs can kill patients if they are not treated. It was also believed by 69.9% (n = 241) of the respondents knew that HCW protect patients from acquiring. Again, majority of the respondents (89.3% (308)) believed that HAIs can be prevented. The study also demonstrated that majority (211) of the respondents representing 61% had positive attitude towards HAIs.

Practices of Respondents toward prevention of HAIs.

The study shows that most (69.9% (241)) of the respondents avoid hand shaking in the hospital in order to prevent HAIs. Again, more than half (55.4% (191)) of the respondents do regular hand washing with soap and water to prevent HAIs. Furthermore, 91.3% (n = 315) were with the view that using different chairs in the hospital would not prevent HAIs. Also, 54.8% (n = 189) of the respondents clean their hands within and after leaving the healthcare facility. Finally, 65.8% (n = 227) of the respondents use hand gel to clean their hands within the hospital. The study also

indicates that majority (57.0% (195)) of the respondents had good practices toward HAIs prevention.

Factors Associated with Knowledge towards prevention of HAIs.

Table 5 shows the multivariable analysis of factors associated with knowledge on healthcare associated infections. Results show that civil/public servants and patients who visited health facility two times were factors associated with knowledge on healthcare associated infections. This is indicated by higher odds on good knowledge on HAIs among civil/public [aOR=2.1, 95% CI 1.43–3.39], and students [aOR=1.46, 95% CI 0.6 0–3.58] compared to those who are self-employed.

Again, results on the multivariable analysis revealed that in terms of number of visits, those who visited two times [aOR=2.37, 95% CI 1.21–4.63], three times [aOR=0.55, 95% CI 0.24–1.30], and four times [aOR=1.23, 95% CI 0.54–2.81] were more likely to have good knowledge on HAIs compared to those who were New patients.

Discussion

The study was conducted to assess knowledge, attitude, and practices of patients regarding HAIS at Ajumako District Hospital in central region of Ghana.

From the study, 54% of patients were knowledgeable about HAIs. Findings from the study indicate that patients who visit Ajumako District Hospital have high knowledge on HAIs. Findings of the study are contrary to the findings of Gudnadottir et al., (2013) who found in their study that patients have limited knowledge about HAIs and their consequences. Again, the finding of the study is contrary to what has been reported by Madeo, Shields and Owen (2008), that patients have poor or little knowledge on HAIs. However, the data in the current study support the findings obtained by Ocran, and Tagoe (2014) who conducted a study in Central Regional hospital in Ghana , where it was identified that patients have some level of knowledge (53.8%) regarding HAIs. Bo, Amprino, Dalmasso and Zotti, (2017) attributed the low knowledge to the fact that healthcare workers do not have enough time to educate patients on HAIs. This was confirmed by Merle et al., (2007), who reported that only a few number of healthcare workers give information on HAIs to patients.

Table 2: Knowledge of Patients on HAIs

Statements	Yes		No		Total	
	n	%	n	%	n	%
Have you ever heard of HAIs?	173	50.1	172	49.9	**345**	**100**
Do you know that catheter-associated urinary tract infection is a type of HAIs?	203	58.8	142	41.2	**345**	**100**
Do you think surgical site infection is a type of HAIs?	203	58.8	142	41.2	**345**	**100**
Can venous catheter associated infection be a type of HAIs?	209	60.6	136	39.4	**345**	**100**
Do you know that pneumonia is a type of HAIs?	142	41.2	203	58.8	**345**	**100**
Have you ever been educated on HAIs in the course of receiving health care?	142	41.2	203	58.8	**345**	**100**
Can any patient develop HAIs in the course of receiving healthcare?	203	58.8	142	41.2	**345**	**100**

Source: Field survey (2017)

Findings on the attitudes of patients towards HAIs in this study support what has been reported by Ocran and Tagoe (2014), where some patients had the belief that been knowledgeable on HAIs could contribute to reduction of HAIs. The reason for the positive attitudes of patients towards HAIs could be attributed to their knowledge on HAIs. With high knowledge on HAIs, patients are more likely to understand some of the issues surrounding HAIs and will see things in a positive manner compared to if they had low knowledge on HAIs. In line with this, a patient with high knowledge on HAIs is more likely to seek healthcare at a different health facility if they are told that they have contracted HAI in the course of seeking healthcare. Furthermore, patients who know that HAIs can be transmitted from one patient to another patient, transmitted from a healthcare worker to a patient, and thinks that HAIs can kill patients if they are not treated are also likely to seek healthcare at different facility.

Table 3: Patients' Attitudes toward HAIs

Statements	Yes		No		Total	
	n	%	n	%	n	%
Will you report to the same healthcare facility with a disease you suspect you had in the course of seeking healthcare?	144	41.7	201	58.3	**345**	**100**
Will you seek healthcare at a different health facility if you are told that you have contracted HAI in the course of seeking healthcare?	203	58.8	142	41.2	**345**	**100**
Do you think HAIs can be transmitted from one patient to another patient?	236	68.4	109	31.6	**345**	**100**
Do you think HAIs can be transmitted from a healthcare worker to a patient?	209	60.6	136	39.4	**345**	**100**
Do you think HAIs can kill you if not treated?	281	81.4	64	18.6	**345**	**100**
Do you believe that misuse of antibiotics can cause HAIs?	162	47.0	183	53.0	**345**	**100**
Do you think the hospital environment is free from infection?	178	51.6	167	48.4	**345**	**100**
Do you believe that HCW protect you from acquiring HAIs?	241	69.9	104	30.1	**345**	**100**
Do you believe that HAIs can be prevented?	308	89.3	37	10.7	**345**	**100**

Source: Field survey (2017)

Findings from the study indicated that patients have good practices on prevention of healthcare associated infections. Data collected from this research work indicates that they do this by avoiding hand shaking in the hospital in order to prevent HAIs, regular hand washing with soap and water to prevent HAIs, cleaning their hands within and after leaving the hospital and using hand gel to

clean their hands within the hospital. This observation contradicts what has been reported by Zaidi, Javed, Naz, & Mumtaz (2016), who found that patients had average practice of preventing these infections and also an account by Sarani et al., (2016), of a poor practice in the prevention of HAIs.

The main reason accounted for the high practices of patients on prevention of healthcare associated infections as found in this study could be attributed to high knowledge and positive attitudes of patients towards HAIs. The various measures used by patients to prevent HAIs is in line with WHO (2016) guidelines, which spelt out infection prevention and control measures, such as effective hand hygiene and the proper application of basic universal precautions during invasive procedures as some measures to prevent HAIs. Such effective infection prevention practices in outpatient settings according to Garrett (2015) are very important for the reduction of the risk of transmitting infections, improving patient safety and patient outcomes, and also reducing costs associated with health care delivery. With such good practices towards preventing HAIs, the consequences of HAIs will be reduced among patients. The consequence of this is an improved health status and general improvement in health care delivery within the hospital.

Table 4: Practices on prevention of healthcare associated infections

Statements	Yes		No		Total	
	n	%	n	%	n	%
Do you avoid hand shaking in the hospital in order to prevent HAIs?	241	69.9	104	30.1	**345**	**100**
Do you do regular hand washing with soap and water to prevent HAIs?	191	55.4	154	44.6	**345**	**100**
Do you use different chairs in the hospital in order to prevent HAIs?	30	8.7	315	91.3	**345**	**100**
Do you clean your hands within and after leaving the hospital?	189	54.8	156	45.2	**345**	**100**
Do you use hand gel to clean your hands within the hospital?	227	65.8	118	34.2	**345**	**100**

Source: Field survey (2017)

Findings from the study indicated a statistically significant association between gender, age, highest level of education, occupation and number of visits and knowledge of patients on HAIs. The relationships between the socio-demographic characteristics of patients and their knowledge on HAIs corroborate the findings of Suchitra and Devi (2007), who found a positive impact of education on knowledge with regards to HAIs. Similarly, the findings of the current study are in line with the findings obtained by Bajracharya, Maharjan and Shrestha (2014), who found in their study that age, duration of hospitalization and educational level were associated with knowledge on surgical site infections. Another data that supports the findings of the current study, is reported by Sarani et al. (2016), who indicated that there was a significant association between gender and knowledge on HAIs. The reason for the association between gender, age, occupation and number of visits and knowledge of patients on HAIs could be associated to the importance of these characteristics in healthcare delivery. In this study, we found higher odds of knowledge on HAIs among Civil/public servant [aOR=2.1, 95% CI 1.43–3.39] compared to the self-employed. Finally, in this study, there were higher odds of among those who visited two times [aOR=2.37, 95% CI 1.21–4.63] as compared to those who were New patients (Table 5).

Table 5: Multivariable logistic regression output for factors associated with knowledge on HAIs

Variable	Adjusted Odds Ratio	P-value	95%CI	
			Lower CI	Upper CI
Gender				
Male	Ref			
Female	0.74	0.273	0.44	1.26
Age				
18-25	Ref			
26 - 30	0.75	0.543	0.29	1.92
31 - 35	0.72	0.466	0.30	1.75
36 - 40	0.29	0.085	0.07	1.18
41 - 45	1.36	0.57	0.47	3.92
46 - 50	1.52	0.476	0.48	4.82
51 - 55	1.88	0.398	0.43	8.20
56 - 60	0.44	0.208	0.12	1.59
Type of patient				
Output	Ref			
Inpatient	0.80	0.534	0.40	1.61
Occupation				
Self employed	Ref			
Civil/public servant	2.11	0.027	1.43	3.39

Student	1.46	0.406	0.60	3.58
Number of visits				
New patient	Ref			
Two times	2.37	0.012	1.21	4.63
Three times	0.55	0.173	0.24	1.30
Four and above	1.23	0.622	0.54	2.81

Source: Field survey (2017)

Conclusions

It could be concluded based on the findings of the study, that majority of patients had high knowledge on HAIs, as most of the respondents (58.8%) stated that they have been educated on HAIs in the course of receiving health care. The study also demonstrated that majority of responding patients had positive attitudes toward HAIs prevention. The current study also shows that most of patients had knowledge of good practices toward HAIs prevention. Descriptive statistical analysis was used to present data as frequencies and percentages. Multivariable regression analysis was employed to examine the relationship between variables in the dataset. Variables (Gender, Age, type of patient, Occupation, and Number of visits) were examined with knowledge on HAIs. The study concluded that civil/public servant had higher odds of having good knowledge on HAIs than the self-employed [AOR=2.1;95%CI=1.43-3.39]. Patients who had visited the facility twice also had higher odds of having good knowledge on HAIs than new patients [AOR=2.37;95%CI=1.21-4.63].

Recommendation

1. There is the need for healthcare institutions to effectively incorporate in their activities, infection prevention and control programs to prevent or minimize the incidence of HAIs.

2. Heads of healthcare facilities should develop protocols that tailored towards delivering information on HAIs to all patients by all healthcare workers. Health care workers need to be knowledgeable about prevention of HAIs so that they can adopt best practices to prevent these infections.

3. Health education is considered to be an essential element that can influence behaviour of patient to enhance and increase good practices of preventing HAIs. Improvement in the knowledge, attitude and practices on HAIs need to be done for all patients visiting healthcare facilities. For

this reason, health educational programs should be intensified to target all patients on the availability and usage of facilities for prevention of HAIs.

4. The government must strengthen its monitoring and evaluation activities on the implementation of infection prevention and control policy.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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