RESEARCH ARTICLE

Compliance of Accredited Hospitals in Hospital Accreditation Programme for Environmental Health and Safety Services Standard (2017 - 2019)

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Abstract:

Hospital accreditation programme is one of the many accreditation programmes that is being implemented in the hospitals to improve staff performance and to give the best practices to the patients. This study was conducted to determine the staff feedback or perception towards hospital accreditation programme conducted by the Malaysian Society for Quality in Health (MSQH). It focused on the compliance of all 100 accredited hospitals for 2017-2019 in Environmental Health and Safety Standard as well as to determine the factors that may cause the hospitals not to comply with the standard. The incompliance of the hospital with the standard indicates that the hospital may not provide a safe environment towards the patients and the staff. The factors that contribute to the incompliance of hospital towards the standards can be seen from the six domains; 1) Organisation and Management, 2) Human Resources, 3) Policies and Procedures, 4) Facilities and Equipment, 5) Quality Improvement Activities and 6) Special Requirements. The findings of this study showed that most of the hospital staff or healthcare providers (95-97%) from the year 2017-2019 agreed that hospital accreditation programme would improve their quality of care. Furthermore, 53% of the hospitals which received Partial Compliance (PC) indicated that the hospitals need to improve their environmental and safety system so that patients and staffs would be in a safe and conducive place. Analytic Hierarchy Process (AHP) technique was used to rank the domains from the lowest contributor to highest contributor by calculating each domain Criteria Weightage (CW). The calculation of Criteria Weightage (CW) showed that the Quality Improvement Activities (QIA) had the highest value of CW with a value of 0.19 followed by Facility and Equipment (F&E) and Policies and Procedures (P&P) with value of 0.18. Human Resources (HR) and Special Requirements (SR) that shared the same CW value of 0.15 were the lowest value compared to other domains. As the study manages to rank the major factor that contributes to the incompliance, the hospital management as well as their stakeholders should prioritise to improve the factor of Quality Improvement Activities in ensuring hospital staff and patients are in a safe environment.

Keywords: accreditation, environment feedback, safety, quality

1. INTRODUCTION

Accreditation is globally accepted as part of the quality improvement tools that is believed to enhance staff performance and safety of a workplace. Hospital accreditation programme is one of the many accreditation programmes that is being implemented in hospitals to improve staff performance in terms of their knowledge and skills and to give the best practices to patients who are being treated in their facility. According to Algahtani et al., (2017),

Hospital Accreditation Programme creates a benchmark that helps hospital to improve their quality in compliance with the international and national standards. In Malaysia, there is only one accreditation body that provides accreditation services for healthcare facilities such as hospitals, medical clinics, haemodialysis centre and dental clinics. Malaysian Society for Quality in Health (MSQH) had been recognised by the Ministry of Health, Standards Malaysia and International Society for Quality in Health (ISQua) to provide the accreditation services (MSQH, 2018).

MSQH set up the standards that the hospital needs to comply, to be recognised as "Good Quality Service Hospital". The Environmental Health and Safety Service Standard is one of the core standards which includes the competency of staff managing the services, the condition and adequacy of the facility and equipment of the hospital, the disaster management plan, the hazard management and the occupational health and safety.

The inability of the hospital to provide a good and safe environment for the patient may result in the patient's dissatisfaction, discomfort and uneasyness among the patients who received the care. Hospital environment would improve the mood of patients in hospital in their process of rehabilitation (Perovic and Perovic, 2017). Uhm and Lau, (2018) also found that one of the dissatisfactions of patient in the hospital was the quality of the environment. This study will determine the hospital staff feedback or perception towards the hospital accreditation programme conducted by MSQH. All 100 accredited hospitals between 2017-2019 in Environmental Health and Safety Standard was examined to determine the factors that cause may the hospital not to comply with the standard.

From this study, policymakers, stakeholders and hospital management can determine the remedial actions that need to be improved in the future so that medical and healthcare providers not just improve their work process but also their environment. Kamalasanan et al., (2020) mentioned that the leaders of organizations believe that finding from accreditation can become guidelines for hospital to continuously improve their facility. This will create an awareness towards our community to seek proper treatment in accredited hospitals especially in terms of Environmental Health and Safety Services. This study was conducted to assess the hospital staff perception towards hospital accreditation programme and focus on the compliance of all 100 accredited hospitals for 2017-2019 in Environmental Health and Safety Standard as well as to determine the factors that caused hospital not to comply with the standard.

2. MATERIALS AND METHODS

The analysis of the data was conducted on the two types of data sources 1) Feedback of the hospitals towards Hospital Accreditation Programme in improving their quality of care and 2) The 100 Accredited Hospital Reports.

The factors that contribute to the incompliance of hospital towards the standards can be seen from the six domains 1) Organisation and Management, 2) Human Resources, 3) Policies and Procedures, 4) Facilities and Equipment, 5) Quality Improvement Activities and 6) Special Requirements. The data from these six domains were analysed using Analytic Hierarchy Process (AHP) to determine the highest cause of the incompliance by determining the weightage of each domain. This method was developed to support multi-criteria decision-making process Yap et al., (2018). Table 1 summarizes the source of data and the analyses involved.

Table 1. Summary of data presentation

Types of Data	**Analysis**
Feedback of hospitals towards Hospital Accreditation programme	• Descriptive analysis • Chi Square
The compliance of Accredited Hospitals in Hospital Accreditation Programme of MSQH for Environmental Health and Safety Service Standard.	• Analysis using One Sample T-Test
The factors that contribute to the Hospitals not achieving Substantial Compliance according to six domains	• Analytic Hierarchy Process (AHP)

The feedback was analysed to determine the hospital staff's perceptions on Hospital Accreditation. Furthermore, the data extracted from 100 hospital reports are the compliance of hospitals towards Environmental Health and Safety Service Standard (Standard 2), the incompliance of hospitals towards this standard indicate the hospital need to improve their environment and safety of hospital towards staff and patients. A Pairwise Comparison is the process of comparing candidates in pairs in order to determine which entity is preferred overall (Table 2).

Table 2. Pairwise Comparison of Environmental Health and Safety Service Standard Domain

Domain	A	B	C	D	E	F	CW	WSV	Ratio CW:WSV
A	1	A/B							
B	B/A	1							
C			1						
D				1					
E					1				
F						1			
SUM									

Note:
A: Organisation and Management
B: Human Resources

C: Policies and Procedures
D: Facility and Equipment
E: Quality Improvement
F: Special Requirements
CW: Criteria Weight
WSV: Weighted Sum Value

3. RESULTS AND DISCUSSION

The study conducted using two types of data collections which were Feedback on Hospital Staff towards Accreditation and Compliance of Hospital towards Environmental Health and Safety Services Standard (Standard 2) from 2017-2019. The compliance was rated using two terms which were Substantial Compliance (SC) and Partial Compliance (PC). Substantial Compliance (SC) means the respective hospital had fully complied with the standard requirements whereas Partial Compliance means the hospital did not comply with the standard requirements which need further improvements in order to provide safe environment towards patients and also staff. Specifically, the rating for the compliance was based on six domains (Organisation and Management, Human Resources, Policies and Procedures, Facilities and Equipment, Quality Improvement Activities, and Special Requirements).

3.1. Perceptions of Hospital Staff towards Accreditation

A set of questionnaires of Feedback on Hospital Accreditation Programme were distributed to all hospitals involved in hospital survey. The questionnaires distributed to all staff after the survey process was to determine the hospital staff's perception of the Hospital Accreditation. A Likert scale ('1': Strongly Disagree, '2': Disagree, '3': Neutral, '4': Agree, '5': Strongly Agree) was used to measure the agreement with MSQH statements in the feedback. The data of the feedback were collected from the year 2017 until 2019. A total of 1382 hospital staffs regardless of gender and race from different hospitals such as in Public, Private and Medical Institution were involved in the feedback survey. Table 3 showed the number of hospital staff involved from 2017-2019. A Cronbach's Alpha reliability test was conducted using SPSS towards the questionnaire. The result showed the Alpha (α) value was more than 0.7 (0.753) which indicated that the questionnaire was within the range of acceptable value. It is aligned with Taber (2018) who categorised that Alpha (α) value 0.71-0.91 are good and acceptable reliability value.

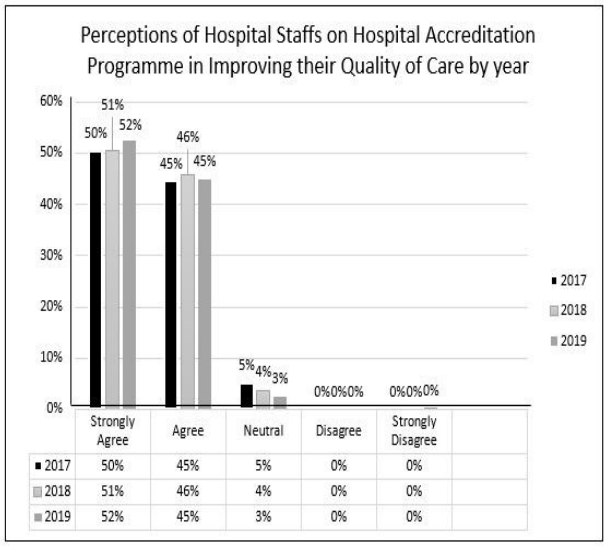
Table 3: Number of hospital staffs involved in Feedback Survey from 2017-2019.

Year	Number of Hospital Staff
2017	294
2018	293
2019	795
Total	1382

In Table 3 the number of hospital staffs involved in the feedback survey for 2019 had a much higher number of respondents compare to year 2017 and 2018. There was a big margin between 2019 with those two years because of the use of electronic feedback in the year 2019. For the year 2017 and 2018, the feedback forms were available in softcopy and hardcopy which mean that the hospital staff needed to print and distribute to the respective respondent. The target of respondent during those two years was limited as the feedback needed to be print that would increase their cost and time-consuming in distributing the questionnaires to the respondent. Electronic or online feedback conducted in 2019 had caused more participants to involve as it is much more convenient in terms of time to answer, and it could be distributed for much wider target respondents.

The statements were on whether all the surveyor's comments and feedback to hospital survey will improve their services. This data is important as to enable MSQH improves the hospital accreditation process.

Figure 1. Perceptions of Hospital Staffs on Hospital Accreditation Programme



From the findings, 50%-52% of hospital staff strongly agree that surveyors' comment and feedback were useful in improving their quality of care while another 45%-46% percent of hospital staff also agreed with the statement. There was only 3-5% of the responses who had neutral perceptions on hospital accreditation and there was 0% of people who had negative feedback towards hospital accreditation. Therefore, a number of 95-97% of the hospital staff agreed that the feedbacks were useful to improve their quality of care. This concluded that the majority of hospital staff had a positive perception of hospital accreditation. They believed that participation in this process would

improve their quality of care and empower the patient safety goals in their hospital. A study conducted by Park et al., (2017) also had a similar result when overall of healthcare providers in South Korea agreed that hospital accreditation improves their quality of care and made them realized the importance of patient safety in their hospitals. Mitchell et al., (2014) added that the accreditation process is a quality indicator in medical care that had been accepted in many countries.

A chi-square analysis was conducted to determine the consistency of hospital perceptions towards hospital accreditation programme. It was hypothesised that the positive feedbacks towards hospital accreditation were consistent throughout the years. The table of chi-square is presented in Table 4.

Table 4. Relationship between Hospital Staffs' Perceptions throughout the years.

Year	Strongly Agree/Agree	Neutral/Disagree/Strongly Disagree
2017	279 (284.00) [0.09]	15 (10.00) [2.50]
2018	282 (283.04) [0.00]	11 (9.96) [0.11]
2019	774 (767.96) [0.05]	21 (27.04) [1.35]
Total	1335	47

Note: Chi-square value is 4.1, p-value is 0.13

Based on the Chi-square analysis, it showed that p-value is more than 0.05 which means that the data is not significant. The Chi-square value of 4.1 is higher than the critical value of chi square which indicates that there is no variation of perception hospital staff towards accreditation. It means the positive feedback of hospital staffs towards hospital accreditation were not changed throughout the years. The hospital staffs consistently believed that the accreditation process would help them improve their quality of care, X2 (2, N = 1382) = 4.1, p = .13 (>.05). The earlier hypothesis was accepted.

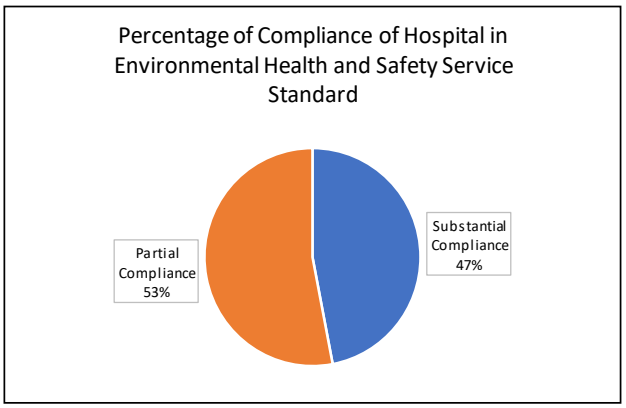
In contrast, despite the positive feedbacks from hospital staffs towards accreditation, there were some negative feedbacks from the respondents. Although only a few throughout the three years, the feedbacks were still recorded for future improvements. For examples, one of the respondents said that the surveyor's comments were a bit discouraging. Another respondent said that the surveyor interview session lead to lesser contact time with the patients. As matter of fact, a study by Bogh, et al., (2018) mentioned that the accreditation process that requires interviews and meetings with hospital staff and would reduce the time of hospital staff with the patients. Furthermore, extra documentation and occupational stress due to accreditation process would increase the anxiety and work-related stress (Saadati, et al., 2018).

3.2. Compliance of Hospitals in Environmental Health and Safety Services Standard (Standard 2) from 2017-2019

Environmental Health and Safety Services Standard (Standard 2) is one of the standards that covers hospital wide. This standard comprises environmental and safety programmes throughout the hospital including safety, comfort and conducive environment to reduce risks to patients, visitors and staff in the hospital. Some other programmes that the hospital needs to comply with are hazard identification, fire safety, workplace safety, disaster plans (internal and external), hazardous material management and security services.

The accreditation compliance use the rating of 'Substantial Compliance' (SC) and 'Partial Compliance' (PC). Figure 2 visualizes the breakdown of the accredited hospitals based on the two ratings. The compliance towards this standard was decided using qualitative and quantitative approach by experienced surveyors.

Figure 2. Compliance of Hospital in Environmental Health and Safety Service Standard



Out of 100 hospitals, 53% of the hospitals received 'Partial Compliance' (PC) indicating that more than half of the accredited hospitals needs to improve their environmental and safety system so that patients and staff would be in a safe and conducive place. There was an association between the environmental condition of the hospital and the psychological condition of staff and also patients (Jamshidi et al., 2019). Safe environment kept the staff productive in providing best care towards the patients.

A one-sample T-Test analysis was conducted to see if there is a significant difference between Partial Compliance (PC) and Substantial Compliance (SC). The analysis showed that the there is a significant difference between Substantial Compliance (SC) and Partial Compliance (PC) of Hospitals in Environmental Health and Safety Services Standard ($p<0.05$).

In general, the incompliance of hospitals towards this standard could be caused by a few factors. There were hospitals that had issues with the infrastructure of the

buildings. It was indeed a challenge for a hospital that operates more than 30 years to comply with the standard due to the old infrastructure. Luxon, (2015) also explained in a study that a good infrastructure must commensurate the following factors which were patient experience, effectiveness, efficiency, timeliness, safety, equity and sustainability. In order to meet a good infrastructure criteria, these infrastructure components need to be accordingly provided which were built environment, equipment, access, Information Technology (IT), systems and processes, sustainability initiatives and staff.

Additionally, another factor that also contributes to the incompliance is lack of Fire Safety System in the hospital. Without a good fire safety plan, it would pose risk towards the staff and patients during a fire outbreak. Fire Safety Act 1998 (Act 341) states that an organisation or a premise need to have a proper fire system to be issued a fire certificate by the Fire Department. Another issue observed was the lack of Chemical Health Risk Assessment (CHRA) by a competent person. A competent person in Occupational Health and Safety is a person who is able to identify hazards and plan to mitigate the risk (Kaelin, 2019). Without a competent person, the risk assessment would not be comprehensive enough to be used by the hospital especially in assessing the risk when handling dangerous chemicals.

It is a concern that as the incompliance for this standard indicate more than half of the hospitals that had undergone the accreditation process did not achieve a good performance in providing safe and healthy environment towards staff and patients.

3.3. Factors that Contribute to the Incompliance of Hospital for Environmental Health and Safety Services Standard (Standard 2)

Environmental Health and Safety Service Standard comprises six main domains which were Organisation and Management (O&M), Human Resources (HR), Policies and Procedures (P&P), Facilities and Equipment (F&E), Quality Improvement Activities (QIA), and Special Requirements (SR). These domains would be determining the compliance of hospital towards the standard. Table 5 summarised the common issues that had been risen by the experience surveyors for each domain throughout the year 2017 to 2019.

Table 5: Summary of Common Issues in Each Domain

Domain	Issue
Organisation and Management	1. There is no coordination of various Committee in handling environmental health issue in Hospital. 2. There is a need to align to roles and responsibilities of all the Committees to ensure all environmental health issues were being rectified effectively.
Human Resources	1. The orientation modules need to be improved to include briefing on policies and procedures related to Environmental, Health and Safety (EHS). 2. The Safety Officer needs to be registered to the Department of Safety and Health (DOSH) and have adequate training on safety and health in hospital.
Policies and Procedures	1. The written policies and procedures are not properly documented. 2. To improve the minutes of meetings on cross referencing on development of policies and procedures. 3. To compile all relevant safety Standard Operating Procedures (SOPs) under Environmental and Safety Services in one master file.
Facilities and Equipment	1. There are spaces constraint in some areas of hospital. There is a need to have proper housekeeping and improving the layout, circulation, and efficient use of space/
Quality Improvement Activities	1. Root Cause Analysis should be carried out on all incidents reported complete with action taken within the agreed time frame to prevent recurrence. 2. It is recommended that all incidents to be reported and compiled. The relevant staff be given further training on the requirements of Incident/accident reporting.
Special Requirements	1. All locations, particularly those which are not occupied 24 hrs x 7 days shall be provided with proper fire detection system

Domain	Issue
	as required.
	2. There is a need to review the firefighting equipment/system, such as fire extinguishers, hydrants, hose reels, fire blankets and fire suppression system.
	3. Training on proper safe handling and colour coding identification be given to all staff.
	4. There is a need to update staff on the use of spillage kit.
	5. To have the disaster plan available.

In order to rank the domain, the weightages were calculated based on the number of Partial Compliance (PC) for each criterion in 100 hospitals. A technique known as the Analytic Hierarchy Process (AHP) was implemented. AHP derives ratio scales from paired comparisons of criteria and allows for some small inconsistencies in judgments. Inputs can be actual measurements, but also subjective opinions. As a result, priorities (weightings) and a consistency ratio would be calculated. The ability of AHP in solving multiple criteria problems qualitatively and quantitatively is the main reason to apply this technique. Complex decision problems are broken down into parts to understand the limitation and advantages of the criteria before decision-making process was done (Lin et al., 2009).

Table 6 shows the Pair Wise Comparison Table that also presents the Criteria Weightage and Weightage Sum Value.

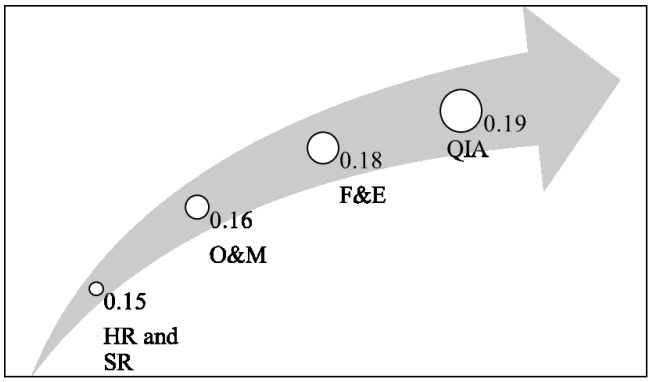
Table 6: Pair Wise Comparison Table

	OM	HR	P&P	F&E	QIA	SR	CW	WSV	WSV: CW
O&M	1.00	0.99	0.88	0.89	0.87	1.02	0.16	0.95	5.95
HR	1.01	1.00	0.88	0.90	0.88	1.03	0.15	0.96	6.39
P&P	1.14	1.13	1.00	1.02	0.99	1.17	0.18	1.11	6.17
F&E	1.12	1.12	0.98	1.00	0.98	1.15	0.18	1.07	5.96
QIA	1.15	1.14	1.01	1.02	1.00	1.17	0.19	1.10	5.79
SR	0.98	0.97	0.86	0.87	0.85	1.00	0.15	0.90	6.03

Note:
OM: Organization and Management
HR: Human Resources
P&P: Policies and Procedures
F&E: Facility and Equipment
QIA: Quality Improvement Activities
SR: Special Requirement
CW: Criteria Weight
WSV: Weighted Sum Value

The values of criteria weightage were used to compare and rank which domain was the highest contributor to the incompliance of the standard. The higher the value of criteria weightages the greater the impact of the domain towards the incompliance. Figure 3 illustrated the ranking of the domain according to the value of criteria weightage. The ranks were arranged according to the lowest weightage to the highest.

Figure 3: Ranking of Criteria Weightage (lowest to highest)



The value of CW by 100 hospitals which had gone through Hospital Accreditation Survey in Environmental Health and Services shows that Standard Quality Improvement Activities (QIA) had the highest value of CW with a value of 0.19 followed by Facility and Equipment (F&E) and Policies and Procedures (P&P) with value of 0.18. Human Resources (HR) and Special Requirements (SR) shared the same value of CW which is 0.15 became the lowest value compared to other domains. Organisation and Management (O&M) had the second-lowest value of CW with a value of 0.16. Weighted Sum Value (WSV) was calculated for each domain to be used in the calculation of Consistency Ratio (CR). The CR was calculated to determine the consistency and reliability of CW. The value of CR calculated in this study was 0.008 which lower than 0.1 and therefore indicates reliability and consistency.

It was found that Quality Improvement Activities (QIA) was the major contributor for the incompliance of the standard. Stakeholders and hospital management need to be concern of the QIA in the Environmental Health Department. As per standard requirement, the department needs to have planned and systematic performance improvement activities. The department need to have a monitoring and evaluation plan of the staff performance, action, or remedial action for improvement.

One of the important quality improvement activities in the department was to educate all staffs to conduct proper incident reports and Root Cause Analysis (RCA). Incident

report is one of the important tools in identifying and also mitigating safety hazards in hospital. Incident report also recognised the importance of implementing best practices to ensure the culture of patient safety could be upheld (Carlfjord et al., 2018). Pham et al., (2013) mentioned that having proper incident reports would increase the patient safety work culture among the staffs by identifying local hazards in the surrounding areas and also the reports could be used as guidelines to avoid same incidents to re-occur. However, the understanding of incident reporting still need to be improved. This was due to the confusion on the implementation of incident reporting among hospital staff. Dhamanti et al., (2019) in a study conducted in Indonesia showed that the level of understanding of hospital staff in all levels were still lacking. A comprehensive and precise Root Cause Analysis would help to minimise the risk of incident to occur. A study conducted by Sluggett et al., (2020) agreed that Root Cause Analysis (RCA) was able to frame effective strategies to minimise the risk of patient's trips, slips and falls in hospital. The implementation need to be followed through by all levels of hospital staff.

4. CONCLUSION

This study managed to prove that the Hospital Accreditation Programme was recognised as a quality improvement tool to enhance healthcare professionals' service. The staff agreed that accreditation is necessary in ensuring that they always implement best practices to uphold the patient safety initiative. Issues in Environmental Health and Safety Service standards could be overcome accordingly with involvement the hospital management, clinical staffs, and non-clinical staffs. As the study manage to rank the major factor that contributes to the incompliance, the hospital management as well as the stakeholders should prioritise Quality Improvement Activities to ensure hospital staff and patients are in a safe environment.

This study is limited to the data collected from Healthcare Professionals who experienced the accreditation process. Generally, they were based on healthcare professionals' perceptions which excluded the view of patients, stakeholders and public towards the accreditation. It is recommended for future study to also include the perceptions of stakeholders and patients towards the accreditation.

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