Compliance on Radiation Safety Policies of Selected Unionized and Non-unionized Private Tertiary Medical Centers in Metro Manila

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Abstract

The hospital industry is one of the industries with a number of different occupational hazards. This is why individuals in the industry have good compensation and adequate protection. On top of the list for high level of protection is the field of medical radiation. Various institutions in the field follow certain guidelines to promote safety. Health care workers expect labor unions to cooperate with hospital managements for the promotion of their safety in the work place. This study aims to determine the relationship of labor unions in the promotion of radiation safety in hospitals, and to pinpoint the aspects for improvement. A survey was conducted to the employees in unionized and non-unionized hospitals using questionnaires with principles based from the International Atomic Energy Agency (IAEA) and the Magna Carta of Public Health Care Workers. Four unionized and three non-unionized private tertiary hospitals in Metro Manila having a bed capacity of 150 and more were featured in the study. The t-test was used in measuring the statistical significance of the differences of the responses between the unionized and non-unionized employees with regards to their institutions’ compliance to radiation safety. The analyses of data showed that the existence of labor unions in a medical establishment does not have a significant influence in its effective compliance with the radiation safety principles.

Keywords: Union; Radiation safety; Compliance

Introduction

The health care field is deemed as one of the most dangerous industries (Hospital Employee Health, 2007). Health care workers face a wide range of hazards on the job including needle stick injuries, back injuries, latex allergies, and stress. Cases of nonfatal occupational injuries and illnesses among health care workers are some of the highest in any industry sector (Center for Disease Control and Prevention – The National Institute for Occupational Safety and Health, 2012).

Several authors have cited the different hazards that health care workers are constantly battling with. These hazards are broadly divided to biological, physical, chemical and psychological/psychosocial hazards [1,2]. Center for Disease Control and Prevention – The National Institute for Occupational Safety and Health, 2012). Medical radiation falls under the physical division.

Radiation, specifically ionizing radiation, is a type of energy that has the capability of producing ion pairs in biological materials [3]. This carries the risk of certain diseases, especially when one is exposed to it on a gradual and daily basis. If the dose is low or delivered over a long period of time (low dose rate), there is a greater probability for damaged cells to successfully repair themselves. However, long-term effects may still occur even if the cell damage is repaired. The repair incorporates errors, rendering the irradiated cell as a source for future mutations. These may lead to cancer after years of exposure [4].

In the event of radiation protection and usage, techniques and devices are now asked as requirements for the provision of license to any health care facility that utilizes radiation. On a national level, the Department of Health (DOH) and the Philippine Nuclear Research Institute (PNRI) are the main regulating bodies in the use of radiation. They provide and enforce guidelines on the uses of nuclear energy for the safety of the radiation-exposed workers and the general public. Accordingly, on an international level, the International Atomic Energy Agency (IAEA) develops nuclear safety standards, promotes the achievement and maintenance of high level of safety in applications of nuclear energy, and protects human health and the environment against ionizing radiation [3].

Despite the regulations implemented, cases of occupational radiation still persist. Some studies indicate that non-compliance with radiation safety may be directly attributed to the lack of knowledge and proper training for employees of the company [5]. Other references stress the lack of skill in radiation protection in certain hospitals as the primary reason for the non-compliance [6].

The government has recognized these issues and has already enforced certain legislative measures to address them. One particular piece of legislation is the Republic Act 7305 or the Magna Carta of Public Health Workers which states that workers constantly exposed in hazardous areas, such as radiation areas, are given additional allowance of up to 25% of the monthly salary depending on the salary grade. However, the republic act only encompasses the public sector; thus, leaving the private sector on its own formulation of hazard compensation.

In addition to measures from the macro level, the issues on radiation protection and safety are also addressed by labor unions in most private institutions. These assemblies have long been argued to be the primary defense of workers, providing not only improved wages and benefits, but also rights and protection related to the exercise of authority and ultimately, to the realization of democratic values at work [7].

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Labor unions or unions have long been a source of power and guidance for workers inside the workplace. They have the power to at least maintain equilibrium and give the workers the right to get what is due them. Benefits are some of the things unions bargain for in collective agreements. These properly compensate workers for jobs that are very hazardous to them. In fact, a study claimed that occupational illness and injury rates are somehow decreased through the presence of a labor union in a company [8]. Even so, because of disparity between institutions, allowances and policies still differ.

Unions have also been proven to pose a great threat to administrators when it comes to managing the institution for they sometimes stress the management to give in to their demands. Furthermore, unions restrict output flexibility less when the cost of inflexibility is higher, and high unionization companies tend to have a higher average cost as compared to companies with lower unionization [9]. When it comes to efficiency, however, studies show that unionization does not have a significant effect on it while non-unionization gives out a more significant relationship because workers' efficiency is influenced by more than just the idea of unionization [10].

The current situation of radiation safety with regards to the activities by the labor unions remains vague and insufficient. According to most of the collective bargaining agreements of the different hospitals, a small amount of money is given per month to employees working in areas deemed to be hazardous by their institution. Included in these areas are the radiation-exposed areas of the hospitals.

There is a huge discrepancy in the matter of compensation provided by public and private institutions to workers exposed in radiation areas. In public hospitals, additional compensation is given based on percentile, unlike in private hospitals wherein the compensation is a fixed amount which does not adequately justify the hazard encountered by the worker. Though some institutions have provisions in their collective bargaining agreements about the importance of the promotion of health and safety, majority does not include specific provision on compensation for employees exposed in areas of hazard [11-14].

In line with these issues on radiation safety, the study focuses on the influence of the existence of unions to the hospitals' compliance to radiation safety principles from the IAEA. The research investigates the perspective of the employees working in radiation-exposed areas of unionized hospitals and non-unionized hospitals to find out any differences in the treatment of radiation safety. Also, the research compares the status of hospitals without a labor union and of hospitals with one to determine if there are differences on the compliance of radiation safety. The study also provides a detailed view of how the employees view their respective institutions in terms of radiation safety. The results of the study are therefore beneficial to union officers, hospital administrators, and workers so as to improve the welfare of every radiation-exposed individual [15-18]. The study is also a reference for future studies concerning the formulation of policies for hazard allowances in all private medical centers in the Philippines. Generally, the study contributes to the betterment of policies on occupational radiation safety and occupational safety.

Data Gathering Procedure

The study utilized a researcher-made questionnaire based on the basic safety guidelines of the IAEA and the Magna Carta of Public Health Care Workers. Follow-up questions on certain items of the questionnaire were asked by the researcher to supplement information on certain topics upon retrieval. The questions on the questionnaire were based on the standards recommended by the IAEA in its Fundamental Safety Principles handbook for standards concerning safety. In terms of legalities and compensation, the researcher used excerpts from the Labor Code of the Philippines and the Magna Carta of Public Health Care Workers [29].

A pilot test was done on a private medical center in Quezon City to determine the reliability and validity of the questionnaires. The researcher validated the items that needed translation for the ease of understanding of the respondents. A Cronbach’s alpha of 0.9146 was computed.

Ethical Consideration

Permission was asked from both the management and the employees to conduct the study, and an informed consent duly understood by all
Data Analysis

A Likert scale with a range of 1-4 (4 being the highest) was used to determine the average response of respondents regarding radiation safety and compliance with standards of the institutions that they are affiliated with. The Likert scale determined the degree in which union representatives perceive how the institution they are currently affiliated with complies with the international and local standards for radiation protection and the degree of hazard compensation to the constituents. The research used the arithmetic mean to determine the level of compliance for the six categories used by the researcher in the questionnaire. The level of compliance was assessed through the Likert scale.

In order to determine the statistical dependence and the relationship of unionization to radiation safety compliance, the study used the t-test for the independent variable. According to Lee (2013), the t-test compares the average values of a characteristic measured on a continuous scale between two subgroups of a categorical variable. The t-crit value used for the study is 1.994. This means that a higher t value would denote a level of significance in the relationship of variables. The t-test compares the average values of a characteristic measured on a continuous scale between two subgroups of a categorical variable. The t-crit value used for the study is 1.994. This means that a higher t value would denote a level of significance in the relationship of variables. The t-test compares the average values of a characteristic measured on a continuous scale between two subgroups of a categorical variable. The t-crit value used for the study is 1.994. This means that a higher t value would denote a level of significance in the relationship of variables. The t-test compares the average values of a characteristic measured on a continuous scale between two subgroups of a categorical variable. The t-crit value used for the study is 1.994.

Table 2: Note: L=0.05 t crit.=1.994; p=0.000  be significant

Results

Responsibility of safety

In the first part of the questionnaire, the items asked about the responsibility of safety of the respective institutions of the respondents with regards to radiation.

In the Table 1, both the unionized and non-unionized group scored the highest mean in item number one (3.64 and 3.72 respectively) which states that: The institution establishes and maintains the necessary competencies in running a radiation facility. Both groups of respondents (unionized and non-unionized) verbalized that the institutions they work for only accept employees with licenses to perform duties of their specific profession. The Department of Health also mandated that licenses must be asked for employees in the medical industry; thus, justifying the high score for the particular item in the questionnaire.

Table 2 suggests that the mean of the responses from the non-unionized group (21.4) is higher than the responses from the unionized group (20.89). The t value and p value (-0.76 and 0.453 respectively) place far enough from the reference point to denote any significance. Therefore, the result shows that the unions have no significant influence in the responsibilities for safety in radiation hazards. The respondents pointed out that the unions are not really that focused in the aspect of occupational safety; thus, supporting the conclusion of insignificance in the influence of labor unions in the responsibilities for safety in radiation-hazard areas.

A number of complaints were encountered specifically from the respondents for the unionized group while conducting the survey. Most of the workers expressed dissatisfaction with the efforts of their unions. On another note, the respondents for the non-unionized group showed discontentment with what management is giving them.

The non-unionized group gave higher rating of approval for their company in terms of responsibility of safety, since verbalized dissatisfaction was seen in the unionized group. From the unstructured interviews that the researcher conducted, the non-unionized group felt more secured in their employers’ initiative on their safety with regards to radiation. The researcher also observed a more collective response from the non-unionized group despite their various affiliations. The scenario was opposite in the unionized group. Respondents from this group claimed that the labor union in their institutions does not do anything for their safety. The initiative of the union officials for the constituents’ safety was also questioned.

According to the fundamental safety principles of the IAEA, the prime responsibility of safety must rest with the person or organization responsible for facilities and activities that gives rise to radiation. The Department of Health also mandated that licenses must be asked for employees in the medical industry; thus, justifying the high score for the particular item in the questionnaire.

Leadership and management of safety

The second part of the questionnaire deals with the leadership and management of safety. The principles of the IAEA state that the management for safety and effective leadership are necessary for facilities and organizations that have radiation risks.
institutions have an organized system of point person(s) for emergency situations. The unionized group asserted that the same is true for their institutions.

On questioning or a learning attitude in regards to safety, both parties showed a low score (3.26 for unionized and 3.4 for non-unionized). Both groups felt that their institutions do not want them to question and complain about their existing policies.

Table 4 indicates that the mean of the responses from the non-unionized group (10.2) is higher as compared with the unionized group (9.89). It is also shown that the t value and p value (-0.75 and 0.456 respectively) are very far from the reference point to denote any significance. Thus, the unions have no significant influence in leadership and management of safety.

**Justification of facilities and activities**

The third part of the questionnaire deals with the activities of the institution in the usage of radiation. All concerned parties must have an overall benefit from the usage of radiation.

The principle included in this part is the capability of the institution to deliver radiation with the best intent and overall greater benefit to the patient.

It is seen in Tables 5a and 5b that the mean of the responses from the non-unionized group (3.48) is higher as compared to the unionized group (3.4). The t value and p value (-0.47 and 0.639) are very far from the reference point to denote any significance. Hence, the unions have no significant influence in the justification of facilities and activities for radiation safety. A reason why unions seem to have no significant influence in aspects of radiation safety is the fact that some of the officials are not that knowledgeable in the principles of the correct and proper usage of radiation in the hospital.

The non-unionized group still maintained a higher score in this category. The non-unionized group verbalized in the unstructured interviews that their institutions do practice policies on optimization of radiation exposure. Collimation and shielding are performed in their institutions for protection from radiation exposure. The unionized group practices the same. The disparity of scores despite having similar perceptions on optimization of radiation usage can be attributed to the dissatisfaction of employees with their unions.

**Optimization of protection**

The sixth part of the questionnaire discusses the monetary and non-monetary compensation of workers exposed in radiation areas as recommended by the Magna Carta of Public Health Care Workers and the Labor Code of the Philippines.

Included in this part are questions regarding medical benefits and assistance for workers exposed, additional compensation and proper education.

Table 6a-6e shows that the lowest score for both unionized and non-unionized groups was in item number one (2.53 and 2.76 respectively). This question tackles the adequacy of monetary compensation to radiation workers. All respondents argued and verbalized that their hazard pay and compensation is low given their type of work.

The highest score for the unionized group was obtained for item number six (3.11) which deals with the institutions regularly updating their safety principles. The respondents from this particular group were aware of the safety updates although the time line and interval of these updates were not clear (Table 6e).
The research sought to determine the influence of having labor unions in medical institutions to their compliance to radiation safety principles. The study based the principles from the handbook of the IAEA. Given from the results of the data gathered from the survey to four unionized and three unionized hospitals in the Metro Manila area with bed capacity of 150 and above, the study found that the non-unionized group scored higher in four principles of compliance, namely: Responsibility of Safety (3.48), Leadership and Management of Safety (10.2), Justification of Facilities and Activities (3.48), and Compensation and Benefits of Workers (19.12) (Table 8).

The data also revealed that in comparison with non-unionized institutions, the presence of a labor union does not have any direct effect on radiation safety and compliance. This result is quite contradictory to the researcher's original hypothesis that unions have a greater and positive effect in terms of radiation safety.

### Summary

The non-unionized group, however, showed to be more supportive to their institutions. The respondents from this group verbalized little complaints despite having no labor union for representation.

With regards to compensation, both groups of respondents expressed a need for an increase in monetary compensation. Furthermore, all respondents agreed that there should be a standardized system for it.

#### Table 8: Comparison of Respondents’ Perceptions on Six Principles of Radiation Safety.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Unionized (Mean (sd))</th>
<th>Non-unionized (Mean (sd))</th>
<th>t Value</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsibility for Safety</td>
<td>20.89 (5.3)</td>
<td>21.4 (2.04)</td>
<td>-0.76</td>
<td>0.453</td>
</tr>
<tr>
<td>Leadership and Management of Safety</td>
<td>9.89 (1.53)</td>
<td>10.2 (1.71)</td>
<td>-0.75</td>
<td>0.456</td>
</tr>
<tr>
<td>Justification of Facilities and Activities</td>
<td>3.4 (0.59)</td>
<td>3.48 (0.68)</td>
<td>-0.47</td>
<td>0.639</td>
</tr>
<tr>
<td>Optimization of Protection</td>
<td>6.62 (1.26)</td>
<td>6.6 (1.18)</td>
<td>0.057</td>
<td>0.995</td>
</tr>
<tr>
<td>Prevention of Accidents</td>
<td>10.17 (1.749)</td>
<td>9.84 (1.748)</td>
<td>-0.76</td>
<td>0.453</td>
</tr>
<tr>
<td>Compensation and Benefits of Workers</td>
<td>17.72 (3.49)</td>
<td>19.12 (4.17)</td>
<td>-1.511</td>
<td>0.135</td>
</tr>
</tbody>
</table>

Note: L=0.05 t crit.=1.994; p=0.000 be significant.
Conclusion

Based on the data obtained by the researcher, the existence of labor unions does not have a direct influence on the compliance of medical institutions to radiation safety principles. The unionized group scored higher in only two out of six categories, leaving the majority of the items to the non-unionized group. In terms of responsibility of safety, leadership and management of safety, justification of activities and facilities, and compensation and benefits of workers, the non-unionized group has higher satisfaction.

Dissatisfaction existed in the unionized group evident in the answers of respondents while answering the questionnaire. This has greatly affected the assessment of the respondents of their institution’s labor unions negatively.

Recommendations

For radiation safety

The results of the study should serve as a wake-up call for hospital managements and unions. For the management of medical establishments, the effort for the promotion of safety and its implementation must be continued and improved periodically to ensure maximum safety for all concerned. For the labor unions, a more proactive approach on safety is needed. The visibility of programs for safety promotion as well as a better understanding of radiation hazards is expected by the members from the unions. Moreover, unions should understand that promotion of safety for the employees is as much priority as clamoring for additional compensation and benefits [25].

Since one of the lowest scores in the questionnaire for both the unionized and non-unionized is about training and education on technological advancements, union officials can collaborate with the management and with the radiation health safety officers to institute educational programs for the workers. Seminars or workshops on how to maximize radiation usage and protection can be a program of the union to instill a culture of safety to those exposed in these areas.

Another low score in the questionnaire is the one about the monetary compensation of the workers exposed in these areas. Unions greatly aid in this aspect through arranging collaborations with the administration to increase the value given to workers exposed in radiation areas. Proper explanation of the risks and hazards faced by the workers can help increase the value received by the workers.

For future studies

The focus of this study is primarily on the hazards of radiation exposure of those working in the hospital. Other hazards such as biological hazards are not part of the study. If future researchers would do a similar type of study, a different tool would be recommended if they are to examine other aspects of occupational hazards. Due to the sensitivity of the nature of the topic, the researcher encountered a lot of hindrances in the collection of data. As stated in the research impediments of the study, some hospitals declined to participate and respondents were hesitant in answering. For future researchers, a higher number of respondents and hospitals will be of more value and could produce more pronounced results. Inclusion of areas with more advanced and specialized use for radiation such as cardiac catheterization labs, linear accelerator or cobalt facilities and nuclear medicine may be included so as to increase the sample size of the research. Furthermore, this study focused on private institutions. Other researchers may include public hospitals to determine the status of radiation safety in those institutions [29,30].

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