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Short Communication

Physical test training as a part of preventive health equipment maintenance for electrical safety at Puskesmas Kecamatan Jagakarsa, South Jakarta

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ABSTRACT

Health equipment is one of the most important supporting factors in the implementation of health services in health service facilities. Therefore, the condition and function of health equipment must be good and can support well by integrating management of health equipment such as planning, procurement and utilization. The Puskesmas Jagakarsa, South Jakarta, is the target location for community service activity, called as PKM. This community service uses training methods which include dialogue in the form of question and answer, discussions, and practices related to IPM and functional tests in the management of medical equipment to the results of the calibration that can be directly felt in collaboration with PT Medcalindo. The electrical safety conditions in the Jagakarsa Puskesmas, DKI Jakarta are available and well planted, the voltage value in Puskesmas is 225.2 Volt still in the standard of electricity in Indonesia which is enforced by PLN for all aspects is 220 V with a tolerance of 5%, The value of electric power is 105 KVA, One socket in several rooms has many branches so it is susceptible to overcurrent and heat which can cause fire. As the conclusion, the electrical safety conditions in the Jagakarsa Puskesmas, DKI Jakarta are quite good. Sockets can be found in each room and accommodate the need for electrical devices but the security for some sockets in areas where there are many child patients (bringing children) is still very minimal.. Some electrical sockets have a connection that allows an over current electric current to occur.

Keywords: Puskesmas, Health equipment, Operators/users, Inspections, Preventive maintenance, Function tests, Performance tests

INTRODUCTION

Health equipment is one of the most important supporting factors in the implementation of health services, both in hospitals, health centers, and in other health service facilities. Therefore, the condition and function of health equipment must be good and can support these health services.[1-6] To achieve this condition it is necessary to have proper and integrated equipment management from planning, procurement, utilization to maintenance. Therefore health equipment and supporting facilities will be optimally effective in the delivery of health services, including at the Puskesmas.[7]

Maintenance of medical equipment is an important function in a health service. As an effort to use medical facilities/equipment so that the continuity of health services can be guaranteed and creates a satisfactory condition. Besides, the medical facilities/equipment were not damaged as long as they were used before their lifetime.[7-13]

Good maintenance will prevent potential hazards that exist in the equipment from injuring humans and the environment. Besides, reduces maintenance cost, increases utility, and is ready for use. As we know, usually medical devices will receive more attention only during

procurement and when they experience problems/damage. Preventive inspections and maintenance of medical equipment are still considered unnecessary.

Most of the health service units only provide funds for equipment repairs which from year to year the value of repairs always increases sharply. This is what underlies us to take the theme of inspection and preventive maintenance in community service activities to fulfill the rights of health equipment which include the right to get a preventive inspection and maintenance program in addition to calibration, service, and the availability of funds for the program.[3,14-17] Preventive inspection and maintenance activities are mandatory activities for which the implementation activities need to be scheduled. Preventive inspections and maintenance are not only the responsibility of technicians but operators/users have a major contribution to these activities which of course are still based on their authority.[18,19]

The administrative city of South Jakarta has 78 Puskesmas. Puskesmas services are getting higher because they serve the badan penyelenggara jaminan sosial (BPJS) program so that the use of medical devices is increasing, therefore maintenance personnel is needed to carry out preventive maintenance through training interventions, making maintenance programs, and their implementation. The benefit is that there is trained personnel who can carry out regular maintenance programs.

The health polytechnic of the Ministry of Health, Jakarta II, is an educational institution for health workers whose tasks are not only through continuous improvement of the quality of learning in the classroom, but also the quality of learning in laboratories, in practice fields in various health service settings, and the community. One of the activities of the health polytechnic Jakarta II health polytechnic education program of the Republic of Indonesia which is related to the Tri Darma Perguruan Tinggi.

This community service activity aims to increase the utility of medical equipment at the Puskesmas Jagakarsa, South Jakarta to increase the user's ability to carry out preventive maintenance.

The benefits of this community service activity are: maintenance of medical equipment as a means of health services at the Puskesmas Jagakarsa, South Jakarta; increase knowledge and skills for users in terms of preventive maintenance at Puskesmas Jagakarsa, South Jakarta; or educational institutions are: improving professional skills for lecturers in terms of inspection and preventive maintenance of medical equipment.

The targets of PKM activities are all electrical wiring, the electrical devices, and service personnel at the Puskesmas Jagakarsa. The output of this PKM activity is to avoid, prevent and reduce the impact of electrical hazards that can occur in the Puskesmas Jagakarsa as well as provide the legality of calibration to the Puskesmas in the Jagakarsa area.[10,11,13,16,20-29]

METHODS

The demonstration on the spot is the main methode for this activity. PKM activity is carried out within 12 months preceded by obtaining a permit from the provincial health office. DKI Jakarta, South Jakarta sub-department, and to the Puskesmas Jagakarsa. After the licensing process has been obtained, the next step is to conduct field surveys, namely the Puskesmas Jagakarsa. The health center condition survey is related to the real condition to the condition of the management of electromedical equipment by its management staff, electromedical equipment, IPM procedures, and its maintenance schedule. A survey was conducted twice to the PKM location, with details of the following activities.

First survey

My arrival and the PKM team for the Puskesmas Jagakarsa were welcomed by Dr. Rebecca. In this first survey, it was a preamble for me and the PKM team to introduce themselves and state the aims and objectives of this PKM activity. There is also an agenda to find out: number of patients per day; number of Puskesmas staff; and area of land and building of Puskesmas.

Second survey

On this occasion, the PKM team and I scheduled to ask: number and specifications of existing medical devices; flow and process of procurement of equipment to the removal of medical devices; responsible for the condition and completeness of medical devices; and equipment and room facilities at the Jagakarsa subdistrict health center

This data will be used to determine material for increasing the human resource capacity in implementing I. Besides, they are trained to modify the mandatory IPM work for each equipment based on the availability of available resources and prepare an IPM schedule for each Puskesmas. At the execution stage, in collaboration with PT Medcalindo and assisted by six students, socialization and training of electric power safety and physical testing of medical devices were carried out using the following method: the lecture method namely used to present material prepared by the implementing team; the question and answer method, which is used to respond to the extent to which the socialization participants understand what has been conveyed by the implementing team; the method of discussion, in which the presenters and participants hold a dialogue discussing issues around the inspection and maintenance of medical equipment and occupational safety and the use of safe medical equipment, all of these methods can be seen on Figure 1; and demonstration method, namely doing directly regarding the prevention and maintenance that can be done by users on electromedical devices. Apart from this, the demonstration

also covered the calibration of the electromedical devices brought by all the invited Puskesmas Jagakarsa area.

Figure 2 shows the demonstrate methode about electrical safety while doing the PKM.

Figure 1: The situation in the room.

Figure 2: Measuring the electrical source.

RESULTS

The presentation of the form of counseling on "electricity safety" was carried out. The presentation was carried out in front of the Puskesmas staff. As for the results, electrical safety was obtained.

Table 1: Comparison between the electrical regulation in republic of Indonesia and the occurred situation.

No.	Health center electrical regulation	Real condition
1.	Regulation of the Minister of health of the Republic of Indonesia number 43 year 2019 concerning community health centers	There are so many access to see the electrical sources around
2.	Indonesia Standard (SNI 0225-2011) and general requirements for electrical installations (PUIL 2011)	The electrical voltage is 220 volt AC with the electric power is above 2200 VA
3.	Regulation of the Minister of health of the Republic of Indonesia number 2306/menkes/per/xi/2011 concerning technical requirements for hospital installation electrical installation	Still be seen, one socket in several rooms has many branches

DISCUSSION

The electrical installation relatively new because the new building infrastructure was inaugurated in mid-2018. The construction of the new building that was inaugurated in mid-2018, at least it has good results, even if all points of availability of electricity needs are available and well planted. When the PKM activities were carried out, the condition of the sub-district Puskesmas had not been handed over to the management of the Puskesmas.[6] The matter in question can be seen in the following two images given in Figure 3 and 4.

Figure 3: Mobile phone charger spot area.

Figure 4: The standard conditions of the well-embedded contact hole.

The voltage value in Puskesmas is 225, 2 volt. The standard of electricity in Indonesia which is enforced by PLN for all aspects is 220 V with a tolerance of 5%.[30] Certainly from this voltage value figure, the performance of the electromedical device can be optimal and the calibration process can be carried out to the invited parties, namely all representatives of the Puskesmas in the Jagakarsa area. The value of electric power at the Puskesmas Jagakarsa is 105 KVA. The voltage value obtained is measured using an electrical safety analyzer (ESA) which can be seen in the Figure 5.

Figure 5: Voltage value detected by ESA.

One socket in several rooms has many branches so it is susceptible to overcurrent and heat which can cause fire. The lead cable must have an identity that is adapted to the current flow that is allowed to flow over it.[20,22] It can be seen from Figure 6 below.

Figure 6: The electrical line connection.

CONCLUSION

The electrical safety conditions in the Jagakarsa Puskesmas, DKI Jakarta are quite good. The condition of the installation in each room is quite tidy because the new Puskesmas infrastructure was inaugurated in mid-2018. Sockets can be found in each room and accommodate the need for electrical devices. The security for sockets in areas where there are many child patients (bringing children) is still very minimal. It could allow the impact of electric power safety hazards. Some electrical sockets have a connection that allows an over current electric current to occur.

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