Original Article

Twelve Years of Occupational Health Services for Health Workers: Accreditation System Implemented in the Hospitals Across Thailand

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Background: The present study aimed to describe the occupational health (OH) services program provided to health workers (HWs) using the concept of quality assurance.

Materials and Methods: The present study was descriptive in design and involved data from the OH services for HWs project conducted by the Occupational and Environmental Health Development Center, Samut Prakan.

Results: The OH services program has been available to all hospitals since 2007. The OH services guideline including 3 components and a quality assurance system has been developed and applied to accredit the hospitals. The auditors were trained and technical guidelines were developed and provided. Until 2016, 100% of regional/general hospitals participated in the program and currently they have been developed and participated to OH services program which address OH services for all kinds of working populations. Later in 2018, 591 (75.7%), community hospitals, which are under the Ministry of Public Health, have participated in the program. Of these, 230 (38.9%) hospitals achieved the excellent level (level 5). Data during 2014 to 2017 revealed that HWs were exposed to a variety of occupational hazards including ergonomic hazards (20 to 25%), biological hazards (15 to 22%), physical hazards (11 to 13%), psychological hazards (12 to 19%), chemical hazards (10 to 12%) and unsafe work conditions (11 to 15%). Most of HWs (80 to 100%) could obtain the annual health examination. Among them, 35 to 40% had BMI over 22.9 kg/m^2 and 10 to 60% had high triglyceride levels over 150 mg/dL. Meanwhile, 5 to 7% of HWs had an abnormal audiogram, 10 to 20% had abnormal spirogram and 33 to 35%, had an abnormal vision test. Influenza vaccination coverage was over 80% among HWs.

Conclusion: Such OH services program was evaluated following the quality control system. It was a voluntary program, therefore, some of the hospitals did not adhere to or conduct OH services activities continually. Community hospitals should establish the OH services for HWs role into organizational structure and set up OH policy to strengthen the services continuity.

Short running title: Twelve years of occupational health services for health workers.

Keywords: Occupational health services, Health workers, Hospital, Accreditation

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Health services are complex work environments, which can at times be hazardous. Unsafe working conditions may lead to attrition of the health workforce. Decent work in the health sector must include workers' health and well-being, since the quality of the work environment can influence the quality of care provided by health workers (HWs). A health worker is one who delivers care and services to the sick and ailing either directly as doctors and nurses or indirectly as aides, helpers, laboratory technicians, or even medical waste handlers. The large numbers of HWs in the world make up an important part of the total labor force and can account for up to 13% of the total workforce[(1)]. HWs operate in an environment that is considered to be one of the most hazardous occupational settings; therefore, they face a wide range of hazards on the job, including injuries, harmful exposures to chemicals and hazardous drugs, back injuries, violence, and stress[(2-5)]. They are exposed to blood-borne infectious diseases, such as HIV, hepatitis B, hepatitis C[(6,7)] and serious respiratory infections such as TB. The magnitude and frequency of the hazards and their impact on health may vary within and across countries due to the working culture, context of services, and economic resources.

In Thailand, there are approximately 300,000 HWs in 1,300 hospitals[(8)] who are exposed to health hazards including sharps injuries, harmful exposures to chemicals

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and hazardous drug, ergonomic, infectious agents, violence, and stress[9]. In 2009, the Occupational and Environmental Health Development Center, Samut Prakan under the Bureau of Occupational and Environmental Diseases (BOED) began to develop an OH services program to carry out risk assessment and control for HWs in the hospital. Such a program identifies occupational hazards and it recommends activities to improve working conditions and to prevent the hazards and their adverse outcomes. Medical surveillance and hazards monitoring were also included in the program. This study aimed to explore the OH services program for HWs using the quality assurance principle among the participated hospitals.

Research design

The descriptive study was conducted.

Materials and Methods

Data were obtained from the OH services for HWs project conducted by the Occupational and Environmental Health Development Center, Samut Prakan. All data related to process, outputs and outcomes of the OH services program were included in the present study and data were analyzed using descriptive statistics.

Results

Chronology of OH services program for HWs

The OH services program has been established among the hospitals in Thailand using experts' opinion since 2007. The recommended activities include 3 components shown in Table 1.

The guidelines and criteria provide the basic mechanism for evaluating practices both through peer and self-evaluation. The quality assurance system has been developed to evaluate the process of OH services for HWs following such guidelines and criteria. The audit process consists of documentary audit and walk-through survey. The auditors included staff of the Regional Office of Disease Prevention and Control, and the staff of the Provincial Public Health Office. They were trained and technical guidelines were provided. Assessment criteria have been classified into 5 levels of hospital activities;

Level 1 fair: A hospital develops policy and committee of OH services for HWs.

Level 2 starting to improve: A hospital has a few activities of OH services for HWs e.g. annual health examination, walk-through survey etc.

Level 3 good: A hospital has more activities of OH services for HWs e.g. health examination due to job risks, environmental monitoring, risks control, etc.

Level 4 very good: A hospital has more activities of OH services for HWs and good risk control.

Level 5 excellent: A hospital conducts with continuity of main activities of OH services for HWs, good risk control, and improvements (at least three years continuation).

The certificate is given to the hospital according to these levels. The duration of the certificate is 3 years, at which time; the hospital needs to be re-evaluated for re-certification.

At the beginning of the program during 2009 to 2014, such guidelines have been revised to suit the real situation of hospitals together with the capacity building of hospitals' staff.

In 2014, a total of 96 provincial hospitals participated in the project as they could pass the assessment criteria. We tried to advocate the policy to support the resources allocation at the provincial level.

In 2015, the program continued to be implemented, but only at the community hospitals. During the same time, such criteria were put as indicators in Thailand Hospital Accreditation (HA). An online health and hazard surveillance data system for HWs has been developed.

In this year, the Department of Disease Control

Table 1. Details of OH services components

Component 1 Administration and management (8 items)	Component 2 Risk assessment and risk management (19 items)	Component 3 Evaluation and monitoring process (5 items)
- Occupational health services for HWs policy, plan and committee are established.	- Procedures of occupational health services including walk-through survey, risk assessment, risk management, fit for work, return to work management, health surveillance including periodic health examination and general health examination, vaccinations against communicable diseases, training on occupational health issues, and standard safety procedure manual are provided. - Occupational diseases and injuries investigation and diagnosis are conducted. - Such program emphasizes health promotion in the workplace, ongoing worker training programs, and accessibility to PPE.	- Risk assessment and health examination results are regularly reviewed, recorded, documented and shared with all staff. - OH services plan are monitored and evaluated.

Table 2. Distribution of community hospitals classified by health area and levels of hospitals' performance

Health area	Levels of performance					Total participated hospital
	1	2	3	4	5&5 re-accredit	
1	0	2	7	18	50	77
2	0	1	1	14	11	27
3	11	4	11	10	7	43
4	0	1	4	15	27	47
5	0	10	19	12	5	46
6	1	14	10	5	4	34
7	3	13	11	11	12	50
8	8	16	13	6	17	60
9	0	2	11	11	30	54
10	0	1	9	9	26	45
11	4	8	22	15	1	50
12	1	4	3	10	40	58
Total	28	76	121	136	230	591

composed a Memorandum of understanding with the Division of Medical Engineering, MoPH to support environmental assessments and guide engineering control efforts to the hospitals.

In 2016, a curriculum for musculoskeletal disorders prevention, a practical guideline for health surveillance among personnel who are exposed to hazardous drugs, and a needle or sharp injuries prevention program have been developed and provided to hospitals throughout Thailand.

In 2017, the program was expanded to include private hospitals.

Table 3. Distribution of participated hospitals under other agencies

Agencies	Participated hospitals	Total hospitals
Ministry of Defense	24	64
University	5	16
Private	3	363
Others	15	62
Total	47	505

Output of the OH services program for HWs

The Provincial Public Health Office in some provinces documented the policy to support the program implementation. Environmental monitoring using occupational health equipment was supported by the Division of Medical Engineering, MoPH in most hospitals.

By 2018, 591 (75.7%) of the 781 community hospitals under the MoPH participated in the project. Of these, 230 (38.9%) hospitals achieved the excellent level. Details are shown in Table 2. However, we estimated that 20% of participating hospitals in the latest database (2018) had expired certificates (data not shown).

Additionally, there were 47 hospitals which are under other agencies that participated in the project. These details are shown in Table 3.

Hazards and health outcomes

During 2014 to 2017 data from 130 to 150 hospitals which reported to the Occupational and Environmental Health Development Center, Samut Prakan in each year showed that HWs were exposed to a variety of occupational hazards such as ergonomic hazards (20 to 25%), biological hazards (15 to 22%), physical hazards (11 to 13%), psychological hazards (12 to 19%), chemical hazards (10 to 12%) and unsafe conditions (11 to 15%). Most of HWs (80 to 100%) could obtain the annual health examination. Among HWs, 35 to 40%, had body mass index over 22.9 kg/m^2, 10 to 60% had triglyceride levels over 150 mg/dL, and 1 to 2% had hypertension and diabetes.

Needlestick, musculoskeletal disorders, occupational stress, tuberculosis were found in 0.6 to 1.0%, 0.1 to 0.2%, 0.08 to 0.10% and 0.08 to 0.10% among HWs, respectively. In addition, 5 to 7% of HWs had abnormal audiogram, 10 to 20% had abnormal spirogram and 33 to 35%, had abnormal vision test. Influenza vaccination coverage was over 80% among HWs (data not shown).

Discussion

The OH services program has been implemented for more than 10 years. This program supports the health care facilities to conduct the OH services delivery to health workers. Risk controls were performed according to the hazardous exposure. The program also supported the Occupational Safety, Health, and Environment Act (BE 2554) that is authorized by the Ministry of Labor. The aims of this act are to reduce occupational hazards not only in the factory but also in the healthcare facilities and to prevent work-related morbidity and mortality of all employees including HWs[10]. Our program is also integrated into the existing quality assurance system, for example, hospital accreditation

(HA), Joint Commission International (JCI) and healthy workplace. Currently, 2P: patient safety and personnel safety policy is announced by the MoPH to protect both patient and HWs from hospital hazards[11]. Our program could strengthen the concept of personnel safety for practical issue. The limitations of the program included the capacity of hospital's staff to conduct OH services activities especially engineering controls. In addition, most of the hospitals lacked occupational health equipment to measure levels of work environment exposures and they were hardly complied to report occupational diseases and injuries in HWs data system. Importantly, even though the percentage of hospitals participating in the program was quite high, some of the hospitals did not adhere to or conduct OH services activities continually. OH services for HWs in the hospitals are provided by the occupational health section, but there is no occupational health and safety management section and a management body in most hospitals. OH services for HWs in such hospitals have been conducted by the committee for example environment (ENV) or occupational health and safety (OH&S) committee. Such committees include representatives from various sections of the hospital. The advantage of this structure is that all sections could support the OH services program; however, the roles of the ENV committee majoring addressed safety and environmental system rather than workforce or workplace. OH services program for HWs was not sustainable in some hospitals especially in some community hospitals.

Recommendations

1) The staff of the Regional Office of Disease Prevention and Control, and the staff of the Provincial Public Health Office are the key persons to support the hospital to conduct OH services such as equipment for environmental monitoring or periodic health examination, recommendations for control, monitoring and evaluation of risks, and other more technical support to the participated hospitals. They, therefore, need to be strengthened by the national agencies as well.

2) Collaborate among administration section or personnel section and occupational health staff to conduct integrated program including OH services for HWs and occupational health and safety management in the hospital.

3) Extend the program to cover primary care units and private hospitals.

4) Drive the public health national policy to support the budget to the hospitals for OH services program implementation.

5) Improve and control the quality of data recorded and reported to the existing system.

6) More contribute and strengthen OH services for their HWs in ENV committee among the community hospitals.

Conclusion

Most of hospitals agreed to join OH service program. Such OH services program was evaluated following the quality control system. Key success factors of such program were establishment of policy, teamwork, and participation of all stakeholders of the hospital and other supportive agencies. Ergonomics and biological hazards were often found in the hospitals. HWs were advised to change the tools, equipment, job design, or work area to control such hazards. In addition, the ventilation should be improved to decrease biological hazards.

What is already known on this topic?

At international and national levels, the OH&S in the health care facilities have been documented. Most research has focused on health hazards and occupational diseases or injuries among HWs, without exploring the system of national OH services for HWs program implemented at the hospitals in the entire country.

What this study adds?

The OH services program for health care facilities, together with the establishment of a quality assurance system was explored. The outputs and outcomes of the program were also identified. This model is useful for other countries to use for assessing prevention of work related diseases and injuries programs among HWs.

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Potential conflicts of interests

The authors declare no conflict of interest.

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