

## Occupational health administration and manager's expectation towards occupational physician's role among corporate enterprises in Thailand

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- Objective** : *To examine occupational health administration and the manager's expectations as to the physician's roles among large-scale enterprises in Thailand.*
- Setting** : *Department of Preventive and Social Medicine, Faculty of Medicine, Chulalongkorn University*
- Design** : *Cross-sectional descriptive study*
- Methodology** : *The study was conducted by mailing questionnaires to the managers of 294 enterprises. In-depth interviews were conducted with 10 managers. In this study, MacNemar Chi-square test, unpaired t-test, One-way ANOVA, Mann-Whitney U test, Kruskal-Wallis test and descriptive information were used for statistical evaluation.*
- Results** : *The response rate was 62.2%. Most (>90%) of the enterprises had safety alarms, occupational health and safety committees, personal protective equipment and periodic physical examinations. Most (95%) corporate managers expected physicians to perform treatments and participate in corporate health promotion programs. Factors affecting occupational health administration were training and observing occupational health and safety activities,*

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*membership in occupational health and safety committees, enterprise's location, characteristics of the enterprises, number of employees, having a mother company, category of enterprises, and having safety officers ( $p < 0.05$ ). However, factors on managers did not significantly relate to their expectations of the physicians ( $p > 0.05$ ). In-depth interviews revealed that the problems of occupational health administration resulted from employee behavior and limited budgets. Additionally, medical schools should enlarge occupational medicine contents in the medical curriculum. Concerned bodies should recognize the importance of occupational health and occupational medicine.*

**Conclusion** : *These findings indicate that various sectors should collaborate to improve occupational health services. It was recommended that medical institutes include more adequate training in occupational medicine not only regarding treatment but also the entire practice.*

**Key words** : *Occupational Health, Manager, Occupational Physician's Role.*

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บัญชา พร้อมดิษฐ์, สุริรัตน์ งามเกียรติไพศาล, มานิตย์ ประพันธ์ศิลป์, พรชัย สิทธิศรีณัยกุล.  
การบริหารงานอาชีวอนามัยและความปลอดภัยในโรงพยาบาลแพทย์อาชีวเวชศาสตร์ของผู้บริหารใน  
สถานประกอบการขนาดใหญ่ในประเทศไทย. จุฬาลงกรณ์เวชสาร 2542 ต.ค; 43(10): 723-37

- วัตถุประสงค์** : เพื่อศึกษาการบริหารงานอาชีวอนามัยและความปลอดภัยในโรงพยาบาลแพทย์อาชีวเวชศาสตร์ของผู้บริหารในสถานประกอบการขนาดใหญ่ในประเทศไทย
- สถานที่ที่ทำการศึกษา** : ภาควิชาเวชศาสตร์ป้องกันและสังคม คณะแพทยศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย
- รูปแบบการวิจัย** : การสำรวจแบบตัดขวาง ณ เวลาหนึ่ง
- วิธีการ** : ส่งแบบสอบถามทางไปรษณีย์ถึงผู้บริหารประจำสถานประกอบการทุกแห่ง จำนวน 294 แห่ง และสัมภาษณ์เจาะลึกผู้บริหาร 10 ท่าน เปรียบเทียบความแตกต่างโดยวิเคราะห์ข้อมูลด้วย MacNemar Chi-square Test, Unpaired t-test One-way ANOVA, Mann-Whitney U Test, Kruskal-Wallis Test และข้อความเชิงพรรณนาในส่วนข้อมูลจากแบบสัมภาษณ์
- ผลการศึกษา** : อัตราตอบกลับ 62.2% จากแบบสอบถามพบว่าสถานประกอบการมากกว่าร้อยละ 90 มีสัญญาณเตือนภัยต่างๆ มีคณะกรรมการด้านอาชีวอนามัยและความปลอดภัยมีอุปกรณ์ป้องกันอันตรายส่วนบุคคล และมีการตรวจสุขภาพลูกจ้างประจำปี ผู้บริหารมากกว่าร้อยละ 95 คาดหวังให้แพทย์ปฏิบัติงานด้านรักษาพยาบาลและมีส่วนร่วมในโครงการส่งเสริมสุขภาพปัจจัยที่มีผลต่อการบริหารงานอาชีวอนามัยอย่างมีนัยสำคัญทางสถิติ ( $p < 0.05$ ) คือ การฝึกอบรมและการศึกษาดูงานการเป็นกรรมการในคณะกรรมการด้านอาชีวอนามัยและความปลอดภัย สถานที่ตั้ง ลักษณะของสถานประกอบการ จำนวนลูกจ้าง การมีบริษัทแม่หรือสำนักงานใหญ่ ชนิดของอุตสาหกรรมและการมีเจ้าหน้าที่ความปลอดภัยในการทำงาน ส่วนปัจจัยด้านผู้บริหารสัมพันธ์กับความคาดหวัง บทบาทแพทย์อาชีวเวชศาสตร์อย่างไม่มีนัยสำคัญทางสถิติ ( $p > 0.05$ )

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|-----------------------|---|
| <p>วิจารณ์และสรุป</p> | <p>: การศึกษาครั้งนี้แสดงให้เห็นแนวทางการพัฒนาบริการอาชีวอนามัยว่าเป็นสิ่งที่ทุกฝ่ายควรร่วมมือกัน โดยเฉพาะโรงเรียนแพทย์ ควรเพิ่มเนื้อหาวิชาด้านอาชีวเวชศาสตร์แก่นักเรียนแพทย์ให้มากขึ้น อีกทั้งหน่วยงานต่าง ๆ ที่เกี่ยวข้องควรให้ความสำคัญต่องานด้านนี้ให้มากขึ้นด้วย</p> |
| <p>คำสำคัญ</p>        | <p>: อาชีวอนามัย, ผู้บริหารสถานประกอบการ, บทบาทหน้าที่แพทย์อาชีวเวชศาสตร์</p>   |

Currently, the industrial sectors in Thailand are increasingly using technological innovations in their workplaces. Some of these technologies can be hazardous and were acquired from other developed countries. They might have liabilities regarding safety and health and the workers might lack knowledge of the potential risks associated with them and their safe handling.<sup>(1)</sup> Besides causing illness or injury in the workers, they may also indirectly adversely affect their families and the employers financially. They have to pay a higher cost for medical treatment, for employees training, replacement, and overtime, and a higher premium for the workers compensation funds. This, in concert, will adversely affect the nation's economy in the long run.

One of the key components for preventing and controlling such problems is to provide in-house occupational health services. Good employers should be responsible for their employees health and safety, to comply with the laws, and provide these services to their employees.<sup>(2,3)</sup> Occupational medicine<sup>(4)</sup> may be viewed as a subset of occupational health, and occupational medicine physicians<sup>(5)</sup> are the key personnel and the leaders of this team. It is also the responsibility of large enterprises to retain physicians to provide medical care to their employees.

In Thailand, there have been only a few studies regarding occupational health,<sup>(6-8)</sup> especially management of occupational health services in large-scale enterprises (more than 1000 employees). In terms of the managers expectations regarding the occupational medicine physicians functions and roles, there have been no previous studies. Knowledge these is useful in understanding the managers perspectives

of occupational health services and thus getting them involved in these services. This study was aimed at exploring the management of occupational health services, the managers expectations as to the occupational medicine physicians functions and roles, and factors affecting occupational health management among large-scale enterprises in Thailand.

### Materials and Methods

**Quantitative** This was a cross-sectional descriptive study. Questionnaires were mailed to the managers (direct superiors) of the corporate physicians of all 294 large-scale enterprises, (each with more than 1,000 employees) in Thailand. The questionnaire comprised 3 parts: general information about the manager and the enterprise (17 questions), current practice in occupational health services management (45 questions, 21 about safety, 18 about health, 6 about environment, and their expectations regarding the physician's role (40 questions, 21 major roles and 19 minor roles. The questionnaire had been subjected to expert opinion and correction to improve its the validity.

**Qualitative** Ten of the subjects willing to participate in phase 2 were randomly selected and interviewed using a semi-structured interview guide. Detailed opinions regarding training in occupational medicine were also solicited.

Data obtained was analyzed by appropriate descriptive statistics (percent, mean, standard deviation) and inferential statistics (MacNemar Chi-square test, Unpaired t-test, One Way Analysis of Variance, Mann Whitney U test, and Kruskal-Wallis H test). Data from the qualitative phase was presented in text format.

## Results

The response rate was 62.2 % (183 out of 294). Most managers (72.1 %) were male, with an average age of 41 years, and had been in their current position for 7.6 years . Only 12.6 % of them held a position related to occupational safety and health. Most of them (78.7 %) had a bachelor degree or lower, 73.2 % had previously trained in occupational health, 66.1 % had observed occupational health activities, 96.2% regularly obtained information regarding occupational health, and 67.8 % were members of occupational health and safety committees. Most enterprises (65 %) were located in the Bangkok metropolitan area and its vicinity. The average number of employees was 2315. Thais owned 62.8 % of the enterprises. But 51.9 % were franchised with a mother company. Seventy six point five percent produced products. Most, but not all of them hired physicians (79.2 %), nurses (94.5 %), and safety officers (75.9 %). Physicians had an average working time of 7.6 hours per week with 66.1 % working for less than 10 hours per week, i.e., most of them were hired part-time.

Table 1 shows the management of occupational health services and more than 90 % of the enterprises had an alarm system, an occupational health and safety committee, and personal protective

equipment. But only one-fifth of them hired a consultant or specialist in occupational health and safety.

Table 2 shows that more than 90 % of the enterprises had in-house medical and nursing treatment, first aid kits, employees health records, and periodic physical examinations. But only one-fifth of them offered a physical examination to their employees before an occupational change.

Table 3 shows that more than 90 % of the enterprises had warning signs and labels, separate lavatories for males and females, and eating places separate from the working places.

Table 4 shows that more than 90 % of the enterprises managers expected physicians to record and keep confidential the employees records conduct, physical examinations and diagnoses, treat those ill or injured, and report the illnesses. The least expected was to physically examine the employee before changes of occupation.

Table 5 shows that more than 90 % of the enterprises managers expected physicians to participate in workplace health promotion programs, know the work-related laws and make suggestions regarding those laws, as well as monitoring the employees health and welfare and participating in making occupational health and safety policies.

**Table 1.** Number (percent) contribution of occupational health service management to safety. (n=183) (row %).

| Item   | Yes        | No        |
|--|------------|-----------|
| 1. Written policy in occupational health and safety                      | 155 (84.7) | 28 (15.3) |
| 2. Declaration of occupational health and safety policy to the employees | 147 (80.3) | 36 (19.7) |
| 3. Clear goal of occupational health and safety services                 | 140 (76.5) | 43 (23.5) |
| 4. Occupational health and safety committee                              | 170 (92.9) | 13 (7.1)  |

Table 1. (Continued).

| Item  | Yes        | No         |
|---|------------|------------|
| 5. Meeting of such committee at least once a month  | 153 (83.6) | 30 (16.4)  |
| 6. Record and report from such meetings   | 161 (88.0) | 22 (12.0)  |
| 7. Written plan for governmental inspection   | 67 (36.6)  | 116 (63.4) |
| 8. Written plan for safety audit  | 127 (69.4) | 56 (30.6)  |
| 9. Perform as plan in Item 8 at least once a month  | 130 (71.0) | 53 (29.0)  |
| 10. Analysis of every audit result  | 120 (65.6) | 63 (34.4)  |
| 11. Written emergency response plan   | 141 (77.0) | 42 (23.0)  |
| 12. Drill as plan in Item 11  | 156 (85.2) | 27 (14.8)  |
| 13. Alarms  | 174 (95.1) | 9 (4.9)    |
| 14. Personal protective equipment   | 165 (90.2) | 18 (9.8)   |
| 15. Training of employees for appropriate use of personal protective equipment                        | 148 (80.9) | 35 (19.1)  |
| 16. Providing information about occupational health and safety to employees                           | 140 (76.5) | 43 (23.5)  |
| 17. Hiring a consultant or specialist in occupational health and safety                               | 37 (20.2)  | 146 (79.8) |
| 18. Accident at workplace   | 166 (90.7) | 17 (9.3)   |
| 19. Recording the accidents   | 161 (88.0) | 22 (12.0)  |
| 20. Accident record keeping   | 160 (87.4) | 23 (12.6)  |
| 21. Accident investigation  | 159 (86.9) | 24 (13.1)  |
| 22. Analysing the cause of accidents  | 154 (84.2) | 29 (15.8)  |
| 23. Accident report   | 158 (86.3) | 25 (13.7)  |
| 24. Special activities such as workplace safety week  | 121 (66.1) | 62 (33.9)  |
| 25. Hazard communication  | 151 (82.5) | 32 (17.5)  |
| 26. Training in occupational health and safety for new employees                                      | 135 (73.8) | 48 (26.2)  |
| 27. Periodic training in occupational health and safety for managers and foremen at least once a year | 137 (74.9) | 46 (25.1)  |
| 28. Evaluation of occupational health and safety services at least once a year                        | 128 (69.9) | 55 (30.1)  |
| 29. Declaration of occupational health and safety services to the public                              | 40 (21.9)  | 143 (78.1) |

**Table 2.** Number (percent) contribution of occupational health service management to health (n=183) (row %).

| Item  | Yes        | No         |
|---|------------|------------|
| 1. Pre-placement examination                          | 151 (82.5) | 32 (17.5)  |
| 2. Periodic examination                               | 176 (96.2) | 7 (3.8)    |
| 3. Return-to-work examination                         | 160 (87.4) | 23 (12.6)  |
| 4. Physical examination before occupational change    | 38 (20.8)  | 145 (79.2) |
| 5. In-house nursing room                              | 177 (96.7) | 6 (3.3)    |
| 6. Vehicle for transporting ill workers               | 173 (94.5) | 10 (5.5)   |
| 7. Reserve first-aid kits at workplace                | 180 (98.4) | 3 (1.6)    |
| 8. Special examination such as audiometry             | 107 (58.5) | 76 (41.5)  |
| 9. In-house medical/nursing care for the ill/injured  | 181 (98.9) | 2 (1.1)    |
| 10. Employee health record                            | 177 (96.7) | 6 (3.3)    |
| 11. Health record keeping                             | 175 (95.6) | 8 (4.4)    |
| 12. Confidentiality of health record                  | 171 (93.4) | 12 (6.6)   |
| 13. Referral of the ill/injured employees to hospital | 176 (96.2) | 7 (3.8)    |
| 14. Analysing the cause of illness/injury             | 147 (80.3) | 36 (19.7)  |
| 15. Physical rehabilitation                           | 74 (40.4)  | 109 (59.6) |
| 16. Employee immunization                             | 92 (50.3)  | 91 (49.7)  |
| 17. Workplace health promotion program                | 130 (71.0) | 53 (29.0)  |
| 18. Health education or medical advice                | 160 (87.4) | 23 (12.6)  |

**Table 3.** Number (Percent) contribution of occupational health service management to environment (n=183) (row %).

| Item   | Yes         | No        |
|--|-------------|-----------|
| 1. Written plan of environmental monitoring      | 112 (61.2)  | 71 (38.8) |
| 2. Environmental monitoring at least once a year | 122 (66.7)  | 61 (33.3) |
| 3. In-house waste water treatment                | 142 (77.6)  | 41 (22.4) |
| 4. Separate lavatories for males and females     | 182 (99.5)  | 1 (0.5)   |
| 5. Eating place separate from working place      | 176 (96.2)  | 7 (3.8)   |
| 6. Signs and labels such as "No Smoking"         | 183 (100.0) | 0         |



**Table 4.** Manager's expectations (in %) as to physician's roles: major roles (n=183) (row %).

| Item   | Should be<br>practiced | Should not<br>be practiced |
|--|------------------------|----------------------------|
| 1. Physical examination of employees                                   |                        |                            |
| 1.1) Pre-placement examination and considering occupation and health   | 171 (93.4)             | 12 (6.6)                   |
| 1.2) Periodic examination such as annual check-up                      | 177 (96.7)             | 6 (3.3)                    |
| 1.3) Return-to-work examination (after long sick leave or disability)  | 149 (81.4)             | 34 (18.6)                  |
| 1.4) Before occupational change  | 107 (58.5)             | 76 (41.5)                  |
| 2. Treatment   |                        |                            |
| 2.1) History taking : general and occupational                         | 179 (97.8)             | 4 (2.2)                    |
| 2.2) physical examination and diagnosis                                | 181 (98.9)             | 2 (1.1)                    |
| 2.3) treatment of work-related and non work-related illness/injuries   | 181 (98.9)             | 2 (1.1)                    |
| 2.4) Employees' record and record keeping                              | 182 (99.5)             | 1 (0.5)                    |
| 2.5) Confidentiality of employees' record                              | 180 (98.4)             | 3 (1.6)                    |
| 2.6) Referral of the ill employee to the hospital                      | 178 (97.3)             | 5 (2.7)                    |
| 2.7) Follow-up of treated employees                                    | 179 (97.8)             | 4 (2.2)                    |
| 2.8) Report of illness/injuries  | 180 (98.4)             | 3 (1.6)                    |
| 3. Rehabilitation  | 151 (82.5)             | 32 (17.5)                  |
| 4. Health advice to employees at work                                  | 177 (96.7)             | 6 (3.3)                    |
| 5. Health advice to employees before occupational change or retirement | 130 (71.0)             | 53 (29.0)                  |
| 6. Health advice to employees about self care                          |                        |                            |
| 6.1) general employees   | 179 (97.8)             | 4 (2.2)                    |
| 6.2) employees at high risk or in hazardous working environment        | 179 (97.8)             | 4 (2.2)                    |
| 7. Proposing or providing medical equipment                            | 168 (91.8)             | 15 (8.2)                   |
| 8. Immunization against work-related diseases                          | 167 (91.3)             | 16 (8.7)                   |
| 9. Immunization against non-work-related diseases                      | 166 (90.7)             | 17 (9.3)                   |
| 10. Special examination and test such as audiometry                    | 169 (92.3)             | 14 (7.7)                   |

Table 5. Managers' expectations (in %) as to physicians' roles: minor roles (n=183)(row %).

| Item   | Should be practiced | Should not be practiced |
|--|---------------------|-------------------------|
| 1. Investigating the employees' illness  | 171 (93.4)          | 12 (6.6)                |
| 2. Conducting or participating in research on occupational health and safety   | 165 (90.2)          | 18 (9.8)                |
| 3. Education and training  |                     |                         |
| 3.1) Educating employees to use personal protective equipment  | 158 (86.3)          | 25 (13.7)               |
| 3.2) Educating employees in first aid  | 176 (96.2)          | 7 (3.8)                 |
| 4. Walk-through survey by physician  |                     |                         |
| 4.1) Getting acquainted with the work processes  | 131 (71.6)          | 52 (28.4)               |
| 4.2) Searching for and assessing hazards from  |                     |                         |
| 4.2.1) raw materials   | 147 (80.3)          | 36 (19.7)               |
| 4.2.2) processes   | 143 (78.1)          | 40 (21.9)               |
| 4.2.3) wastes  | 147 (80.3)          | 36 (19.7)               |
| 4.3) Complementing the diagnoses of employees' illness   | 162 (88.5)          | 21 (11.5)               |
| 5. Participating in workplace health promotion such as exercise, smoking cessation, etc.                               | 181 (98.9)          | 2 (1.1)                 |
| 6. Participating in making occupational health and safety policies   | 172 (94.0)          | 11 (6.0)                |
| 7. Membership in occupational health and safety committee  | 153 (83.6)          | 30 (16.4)               |
| 8. Statistical analyses of employees' illness  | 172 (94.0)          | 11 (6.0)                |
| 9. Providing information or suggestions regarding illness prevention, occupational change, and sick leave of employees | 167 (91.3)          | 16 (8.7)                |
| 10. Advice on environmental sanitation at the workplace  | 158 (86.3)          | 25 (13.7)               |
| 11. Membership in occupational health organizations  | 158 (86.3)          | 25 (13.7)               |
| 12. Knowledge of and advice regarding related laws especially those under Ministry of Labor and Social Welfare         |                     |                         |
| 12.1) Labor protection   | 166 (90.7)          | 17 (9.3)                |
| 12.2) Work-related illnesses   | 181 (98.9)          | 2 (1.1)                 |
| 12.3) Welfare related to employees' health   | 175 (95.6)          | 8 (4.4)                 |

Table 6 shows that discrepancies between current practices and expectations were significant ( $p < 0.05$ ) with respect to rehabilitation, immunizing employees, physical examination before occupational changes, workplace health promotion, and analyzing the causes of the employees illnesses.

One-way ANOVA and unpaired t-test were computed and revealed that significant factors ( $p < 0.05$ ) influencing the discrepancies between current practice and expectations were: being a member in occupational health and safety committees,

training in occupational health and safety, observing occupational health activities, having a mother company, characteristics of enterprises, number of employees, having a safety officer, and category of enterprises. Mann-Whitney U test and Kruskal-Wallis test were computed and revealed that non-significant factors influencing the discrepancies between current practice and expectations were: gender of managers, age, position of the managers, duration of employment, and level of education.

**Table 6.** Comparison between physicians' current practice and managers' expectations (percent).

| Item   | Current practice<br>(n=183) | Expectation<br>(n=183) | Percent discrepancy | p-value* |
|--|-----------------------------|------------------------|---------------------|----------|
| 1. Pre-placement examination                           | 82.5                        | 93.4                   | 20.7                | 0.002 ** |
| 2. Periodic examination                                | 96.2                        | 96.7                   | 6.0                 | 1.000    |
| 3. Return-to-work examination                          | 87.4                        | 81.4                   | 27.8                | 0.161    |
| 4. Employee examination before occupational change     | 20.8                        | 58.5                   | 48.7                | 0.000**  |
| 5. In-house medical treatment                          | 98.9                        | 98.9                   | 1.0                 | 1.000    |
| 6. Record and record-keeping of employees' health data | 90.2                        | 99.5                   | 4.9                 | 0.039 ** |
| 7. Referral of ill employees to the hospital           | 96.2                        | 97.3                   | 5.5                 | 0.754    |
| 8. Confidentiality of employees' health records        | 93.4                        | 98.4                   | 7.1                 | 0.022 ** |
| 9. Assessing the causes of employees' illness          | 80.3                        | 93.4                   | 23.5                | 0.000 ** |
| 10. Physical rehabilitation                            | 40.4                        | 82.5                   | 49.7                | 0.000 ** |
| 11. Employee immunization                              | 50.3                        | 90.7                   | 48.1                | 0.000 ** |
| 12. Workplace health promotion                         | 71.0                        | 98.9                   | 28.9                | 0.000 ** |
| 13. Education or health advice                         | 87.4                        | 96.7                   | 14.7                | 0.002 ** |

\*MacNemar Chi-square test      \*\*significance at  $p < 0.05$

Data from in-depth-interviews revealed that enterprises with foreign mother companies obtained their occupational health and safety policies from their mother companies. Banking sectors found no major problems, whereas major problems in production industries were limited budgets and the employees participation. In state enterprises, problems were the employees' behavior, limited budgets, and inappropriate rules and regulations. All full-time physicians had a job description and performed occupational health tasks other than treatment. All part-time physicians performed only treatment. All 10 physicians interviewed agreed that occupational health was taught in medical schools. Seven of the 10 expressed their opinion that the government should determine minimum roles of occupational medicine physicians, aside from treatment.

### Discussion

The response rate was 62.2 %, similar to a study by Williams<sup>(10)</sup> in the United Kingdom with a response rate of 57 %. Only 13.7 % of the enterprises had full-time physicians whereas 69.4 % had part-time, similar to a study in Thailand by Teraoka<sup>(11)</sup> which found 14.3 % full time and 66.7 % part-time. Most (66.1 %) of the part-time physicians worked less than 10 hours per week, also similar to a study in Denmark by von Bulow.<sup>(12)</sup> Most part-time physicians came to work on only some days, such as two hours on Mondays, Wednesdays, and Fridays, and most of them practiced only treatment. Most (94.5 %) hired a nurse, exceeding the 60 % reported in a previous study by Natapintu.<sup>(13)</sup> Only 15.5 % of the full-time nurses had training in occupational health. Managers

should improve this as nurses are key persons providing comprehensive health services to the employees. Most (75.9 %) hired a safety officer, but this is less than the 95.2 % reported in Teraoka's study.<sup>(11)</sup> Those not hiring a safety officer gave budget limitations as the reason.

Regarding occupational health management, some enterprises did have policies but did not declare them to the employees and this should be corrected. And 7.1 % of the enterprises did not establish an occupational health and safety committee. Some state enterprises lacked written policies, had limited budgets, and did not have any specific body to handle the management. Ninety point two percent provided personal protective equipment to the employees, and this was less than the 100 % found in the study by Natapintu.<sup>(13)</sup> And only 80.9 % trained their employees to properly use the personal protective equipment, implying that some enterprises did not realize their importance. Eighty four point two percent analyzed the causes of accidents, 66.1 % had special activities regarding safety. These were above the 42.1 % and 36.8 % found in a study by Kangwanklai.<sup>(7)</sup>

Few (9.3 %) enterprises did not have any accidents in the workplace. This might be under-reported or under-recorded, implying some weaknesses in the health data management system.

Regarding occupational health management, pre-placement examination was performed in 82.5 % of the enterprises, exceeding the results of the study by Kangwanklai<sup>(7)</sup> which found only 68.4 % but similar to those of the study by Conway<sup>(14)</sup> which found 84.4 %. Ninety six point two percent had periodic examinations, a larger percentage than in

the study by Teraoka<sup>(11)</sup> and Conway<sup>(14)</sup> which found 90.5 % and 70.8 %, respectively. Most enterprises contracted an external health company to perform these periodic examinations. The remaining 3.8 % might have budget constraints.

Two-thirds (66.7 %) of the enterprises had environmental monitoring to a lesser extent than in the study by Teraoka<sup>(11)</sup> which found 71.4 %. This might be due to some enterprises not perceiving the health risks at their workplace and hence, not realizing the importance of such monitoring. This misconception should be corrected as well.

Regarding expectations as to the physicians roles, managers had higher expectations with respect to treatment than to other aspects. Regarding physical examinations, they put more emphasis on periodic examinations than on pre-placement examinations, different from the study by Williams<sup>(10)</sup> which found that managers put more weight on pre-placement examinations. However, most (98.9 %) managers expected physicians to participate in workplace health promotion. A walk-through survey by the physicians in order to learn the processes and health hazards was least expected, possibly because they thought this was the role of occupational hygienists or safety officers. More than 90 % of the managers expected that physicians knew and could give advice on work-related laws and welfare, physicians should therefore update their knowledge in these areas. Managers with previous training and observing occupational health and safety activities had higher scores on occupational health management than those without previous training and observing. Training rendered them informed, more alert, and more responsible.<sup>(15,16)</sup> Those in the occupa-

health and safety committees also performed better, possibly because working as a team is the best approach to occupational health management.<sup>(17)</sup> Enterprises located outside Bangkok had better management because the geographical location constitutes an important factor in large-scale enterprise health management.<sup>(18)</sup> Moreover, they sent their employees to attend occupational health and safety activities more frequently. Enterprises with more than 1500 employees had better scores because the number of employees determined the occupational health services,<sup>(18,20)</sup> the higher the number, the better the services. Foreign private companies performed better because their foreign companies had higher standards.<sup>(8,21)</sup> Enterprises with a mother company performed better because they adopted their policies and practices from the mother company. Those producing products performed better than those providing services, probably because they used more machines and equipment and hence were more likely to perceive the health risks.<sup>(22,23)</sup> It was also obvious that those with safety officers performed better than those without.<sup>(24)</sup> Therefore, enterprises should be encouraged to have these positive factors.

In summary, this study revealed that managers in various types of workplaces had similar expectations regarding the physicians functions and roles. Corporate physicians should be informed about these expectations and be updated or educated accordingly. Several positive factors (such as being a member in occupational health and safety committee, training in occupational health and safety, and having a safety officer) should be introduced and encouraged. Medical institutes should offer training and education in occupational health and occupa-

tional medicine both to the medical students and as continuing education to physicians.

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### References

1. ชำนาญ พจนา. การดำเนินการส่งเสริมความปลอดภัย สุขภาพอนามัย และสวัสดิการในการทำงาน. ใน: การสัมมนาไตรภาคี เรื่อง การส่งเสริมความปลอดภัย สุขภาพอนามัยและสวัสดิการในการทำงาน. สถาบันความปลอดภัยในการทำงานกรมแรงงาน, กรุงเทพมหานคร: กระทรวงแรงงานและสวัสดิการสังคม, 2530: 41-8
2. เพชรสังขะว. การป้องกันอุบัติเหตุ: คู่มือการศึกษาของผู้ใช้แรงงาน. กรุงเทพมหานคร: สำนักงานคณะกรรมการวิจัยแห่งชาติ, 2530: 166
3. Ssheidegger HU. Employee protection and occupational medicine in Switzerland. Legal and organizational aspects. *Therapeutische Umschau* 1989 Nov; 46(11): 762-6
4. สาธารณสุข, กระทรวง, กรมอนามัย, กองอาชีวอนามัย. คู่มือปฏิบัติงานอาชีวอนามัย. 2521: 1-6
5. McDonagh TJ. The physician as a manager. *J Occup Med* 1982 Feb; 24(4): 99-103
6. พงศ์โชติมี ไทรวงาม. ลักษณะการบริหารงานความปลอดภัยในอุตสาหกรรมขนาดใหญ่ของไทย. *วิทยานิพนธ์สังคมสงเคราะห์ศาสตร์มหาบัณฑิต มหาวิทยาลัยธรรมศาสตร์*, 2523.
7. ศิริทิพย์ กังวาลไกล. การศึกษาการบริหารงานความปลอดภัยของโรงงานในนิคมอุตสาหกรรมบางปู. *วิทยานิพนธ์พาณิชยศาสตร์มหาบัณฑิต จุฬาลงกรณ์มหาวิทยาลัย*, 2526.
8. จุฑาพนิต กลิ่นเฟื่อง. เปรียบเทียบการบริหารงานความปลอดภัยในสถานประกอบการการผลิต. *วิทยานิพนธ์วิทยาศาสตร์มหาบัณฑิต สาขาสุขศาสตร์อุตสาหกรรมและความปลอดภัย มหาวิทยาลัยมหิดล*, 2534.
9. ทะเบียนสถานประกอบการ. Database File. กองวิชาการและแผนงาน กรมสวัสดิการและคุ้มครองแรงงาน. กรุงเทพมหานคร: กระทรวงแรงงานและสวัสดิการสังคม, 2540.
10. Williams N, Sobti A, Aw TC. Comparison of perceived occupational health needs among manager, employee representatives and occupational physician. *J Occup Med* 1994 Sep;44(4): 205-8
11. Teraoka T, Chavalitnitikul C. Survey on present situation of safety management in middle and large scale enterprises in Thailand. National Institute for the Improvement of Working Conditions and Environmental, Department of Labour Ministry of Interior, 1990.
12. von Bulow BA. Physicians' tasks in the occupational health services. *Ugeskr Laeger* 1995 May;157(10): 1340-4
13. กาญจนา นาดะพินธุ, สมชาย นาดะพินธุ, ปรีชา กิจวัฒน์ชัย, ประเสริฐ ถาวรดุรงค์ดิษฐ์, กิ่งแก้ว เกษโกวิท. การสำรวจประมวลสถานการณ์เบื้องต้น เรื่องการให้บริการทางด้านอาชีวอนามัยและความปลอดภัยของคนงานในโรงงานอุตสาหกรรมภาคตะวันออกเฉียงเหนือ. *วารสารอาชีวเวชศาสตร์และสิ่งแวดล้อม* 2537 ม.ค.-ธ.ค; 4(1): 22 - 7
14. Conway H, Simmons J, Talbert T. The Occupational Safety and Health Administration's 1990-1991 survey of occupational medical

- surveillance prevalence and type of current practices. JOM 1993 Jul; 35(7): 659-69
15. จำเนียร จวงตระกูล. การดำเนินการส่งเสริมความปลอดภัย สุขภาพอนามัย และสวัสดิการในการทำงานของฝ่ายนายจ้าง. ใน: การสัมมนาไตรภาคีเรื่อง การส่งเสริมความปลอดภัย สุขภาพอนามัย และสวัสดิการในการทำงาน. สถาบันความปลอดภัยในการทำงาน, กรุงเทพฯ: กระทรวงแรงงาน และสวัสดิการสังคม, 2530: 70-1
  16. วิชัย พุกฤษธาราธิกุล. หัวหน้างาน เพื่องตัวสำคัญด้านความปลอดภัยจริงหรือ?. วารสารความปลอดภัยและสิ่งแวดล้อม 2536 ม.ค.-มี.ค; 3(1): 24
  17. ณัฐวัตร มนต์เทวีญ. ความรู้ทั่วไปเกี่ยวกับการบริหารความปลอดภัย. เอกสารการสอนวิชาการบริหารงานความปลอดภัย. หน่วยที่ 1-8. นนทบุรี: สำนักพิมพ์มหาวิทยาลัยสุโขทัยธรรมมาธิราช, 2534:35-80
  18. มานิตย์ ประพันธ์ศิลป์. การจัดบริการสุขภาพให้แก่พนักงานในองค์การขนาดใหญ่. วารสารวิจัยระบบสาธารณสุข 2540; 5(1): 46-50
  19. Chovil AC, Alexander GR, Gibson JJ, Altekruise JM. Occupational health services in South Carolina manufacturing plants: results of a survey. Public Health Rep 1983 Nov-Dec; 98(6):597-603
  20. บัญชา ศรีธนาอุทัยกร. การบริหารความปลอดภัยผ่าน  
การเป็นผู้นำ. วารสารความปลอดภัยและสิ่งแวดล้อม 2536; 3(3): 15-9
  21. สุวิทย์ หาทอง, วีระชัย สาครวงศ์วัฒน์, ชัยยุทธ ขวลิตนิกุล. การแก้ไขปัญหาการประสบอันตรายที่มีประสิทธิภาพในสถานประกอบการ. ใน: คณะกรรมการจัดงานสัปดาห์ความปลอดภัยในการทำงานกระทรวงแรงงานและสวัสดิการสังคม, สมาคมส่งเสริมความปลอดภัย และอนามัยในการทำงาน (ประเทศไทย), มูลนิธิเพื่อส่งเสริมความปลอดภัยในการทำงาน. สัปดาห์ความปลอดภัยในการทำงานแห่งชาติ ครั้งที่ 8 วันที่ 1-5 ก.ค. 2537. กรุงเทพมหานคร: บพิธการพิมพ์, 2537: 89-94
  22. อติศักดิ์ สัตย์ธรรม. การส่งเสริม (พฤติกรรม) สุขภาพเพื่อเพิ่มพลังการผลิตในการปฏิบัติงานในสถานประกอบการ. วารสารความปลอดภัยและสิ่งแวดล้อม 2536 ม.ค.-มี.ค; 3(1): 52-7
  23. ประณมพร โกชนสมบุญณ์. ปัญหาและความต้องการทางสังคมของลูกจ้างที่ประสบอันตราย หรือเจ็บป่วยด้วยโรคเนื่องจากการทำงาน. วิทยานิพนธ์สังคมสงเคราะห์ศาสตรมหาบัณฑิต มหาวิทยาลัยธรรมศาสตร์, 2526.
  24. วีระพงษ์ เฉลิมจิระรัตน์, วิฑูรย์ สิมะโชคดี. วิศวกรรมและการบริหารความปลอดภัยในโรงงาน. กรุงเทพมหานคร: เอช-เอน การพิมพ์, 2528: 25-30