

ความครบถ้วนของการบันทึกข้อมูลเกี่ยวกับประวัติอาชีพในเวชระเบียนผู้ป่วยนอกที่มีแนวโน้มมีภาวะผิดปกติที่เกี่ยวข้องเนื่องจากการทำงานของโรงพยาบาลมหาวิทยาลัยแห่งหนึ่ง ในภาคตะวันออกเฉียงเหนือ

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Completeness of Occupational History Taking Record for Out-Patients with Potential Work-Related Disorders at a University Hospital in Northeast of Thailand

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หลักการและวัตถุประสงค์: ข้อมูลด้านอาชีพและลักษณะงานที่ทำของผู้ป่วยทำให้แพทย์นำมาประกอบการวินิจฉัยโรคของแพทย์ และยังไม่พบการศึกษาในประเทศไทยมาก่อน การศึกษานี้จึงมีวัตถุประสงค์เพื่อศึกษาสัดส่วนของเวชระเบียนที่มีความครบถ้วนของการบันทึกข้อมูลเกี่ยวกับประวัติอาชีพในเวชระเบียนผู้ป่วยนอกที่มีแนวโน้มมีภาวะผิดปกติที่เกี่ยวข้องเนื่องจากการทำงาน

วิธีการศึกษา: เป็นการศึกษาเชิงพรรณนา โดยใช้แบบบันทึกข้อมูลซึ่งได้ออกแบบมาเพื่อบันทึกข้อมูลทั่วไป และข้อมูลที่มีรายละเอียดประวัติอาชีพที่นำมาจากเวชระเบียนผู้ป่วยประกันตนที่เป็นผู้ป่วยนอกของโรงพยาบาลศรีนครินทร์ คณะแพทยศาสตร์ มหาวิทยาลัยขอนแก่น จำนวน 230 ฉบับ

ผลการศึกษา: สัดส่วนของเวชระเบียนที่มีการบันทึกข้อมูลเกี่ยวกับประวัติอาชีพครบถ้วน ร้อยละ 24.8 โดยแพทย์ได้บันทึกอาชีพไว้ ร้อยละ 45.7 และได้บันทึกตรงกันกับอาชีพที่ปรากฏในเวชระเบียน ร้อยละ 24.3 นอกจากนี้แพทย์บันทึกลักษณะการทำงาน ร้อยละ 44.3 และบันทึกสิ่งคุกคามต่อสุขภาพในสัดส่วนค่อนข้างสูง (ร้อยละ 89.6)

Background and Objective: Patients' occupation and job descriptions are important information for making appropriate diagnoses and patient care plans. As no Thai studies were found on this topic this research was designed to investigate the proportion of medical records with the completeness of occupational details recorded in the medical records of out-patients with potentially work-related injuries and/or occupational diseases.

Materials and Methods: A cross-sectional descriptive survey was used to collect personal bio-data, and detailed occupational histories from 230 medical records of social security scheme patients at the Out-Patients Department at Srinagarind Hospital, Faculty of Medicine, Khon Kaen University.

Results: Only 24.8 percent of physician recorded medical records included complete occupational histories. Although 45.7% noted patient's occupation, only 24.3% of

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สรุป: การศึกษานี้ได้ยืนยันว่าสัดส่วนของแพทย์ที่บันทึกข้อมูลด้านอาชีพของผู้ป่วยที่มีแนวโน้มมีภาวะผิดปกติที่เกี่ยวข้องเนื่องจากการทำงานค่อนข้างต่ำ ทั้งนี้อาจเนื่องมาจากเวชระเบียนมีการบันทึกอาชีพของผู้ป่วยอยู่ก่อนที่จะเข้าพบแพทย์ หรืออาจมาจากรูปแบบของเวชระเบียน เวลาที่มีจำกัดระหว่างแพทย์และผู้ป่วย หรือแพทย์มักให้ความสำคัญที่การรักษา ทั้งนี้ความสมบูรณ์ของการบันทึกประวัติอาชีพนั้นมีความสำคัญสำหรับการวินิจฉัยโรค การวางแผนการรักษา ตลอดจนสิทธิการรักษาพยาบาลที่ถูกต้องและเหมาะสม

คำสำคัญ: เวชระเบียน, การซักประวัติ, ประวัติอาชีพ, กองทุนประกันสังคม, ความผิดปกติที่เกี่ยวข้องจากงาน, สิ่งคุกคามต่อสุขภาพ

recorded occupations matched with the original occupations on the medical records. While only 44.3% presented job descriptions, a much higher proportion (89.6%) recorded occupational health hazards.

Conclusion: This study confirms that rates of complete occupational health history taking record with potential work-related disorders by physicians were very low. Several factors may be relevant here; some data already recorded on medical record sheets before consultations take place, medical data collection form design, limited consultation time available for patient interactions, and/or less holistic and overly symptom/treatment focused approach to history taking and patient care. Complete occupational health history taking and recording is important for individual diagnosis and effective patient care plans and patients' appropriate access to funding entitlements.

Keywords: medical record; history taking; occupational history; social security fund; work related; occupational health hazard

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Introduction

Thai surveys of work-related injuries and occupational diseases have found that self-reported incidents were higher than medically recorded events¹⁻³. Similar results were found in the United Kingdom, as reported by The Health and Occupation Reporting Network in General Practice (THOR-GP). A comparison of self-reported work related ill-health and medically certified incidence data found self-reported work-related ill health incidents four times higher than medically certified incidence data in work-related ill health report⁴.

Although 23% of work-related injuries are estimated to be cuts and lacerations and about 45% musculoskeletal diseases (45%), these are likely to be underestimates given the underreporting in medical diagnoses. Diagnosing occupational disease is difficult if there is limited or

non-existent occupational history in patients' medical records⁵. Few Thai physicians consistently diagnose work-related injuries and/or occupational diseases⁵. Consequently, hospitals' health management systems do not comply with workmen's compensation fund requirements and patients have to use their social security fund if physicians do not record their diagnoses as work-related in medical records.

Almost half of a person's time is spent on his/her work or occupation in order to earn money for living and take care of his/her family. Just as gender, age, and health behaviors influence health, occupation-type, and work environments are also health determinants. However, data on work and work settings are often neglected when collecting health information for medical records. Politi, et al.⁶, conducted a study at a United States university teaching hospital on occupational history recording and

found that complete occupational histories were recorded in medical records in only 27.8% of 2,050 cases. Often only one part (i.e. occupation) of the occupational history was recorded. If occupational history is not recorded the patient is less likely to receive an occupational disease diagnosis, altering the patient care.

One Thai research report on social security patients in a university's teaching hospital, found that 10% actually had work-related injuries and/or occupational diseases⁵. This was likely due to few details in the medical records meeting the International Standard Classification of Occupation (ISCO-08)⁷. This study was designed to survey medical record adequacy in a large teaching hospital given the likely underestimating of work-related injuries and/or occupational diseases from incomplete occupational histories and its implications for appropriate and patient care, and patients' access to appropriate social security or workmen's compensation entitlements. Therefore, the objective of this study is to find the proportion of medical records with the completeness of occupational details recorded in the medical records of out-patients with potentially work-related injuries and/or occupational diseases.

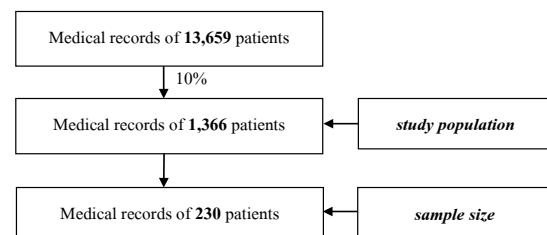
Materials and Methods

Design

This study was a cross-sectional descriptive survey of a sample of 230 medical records of social security patients seen in the out-patients department at Srinagarind Hospital, Faculty of Medicine, Khon Kaen University, Khon Kaen, Thailand between 2004 and 2013. Study population and sample size

Inclusion criteria the total number of social security registered patients seen between 2004 and 2013 were 13,659. A sample of medical records of 1,366 patients (10%) was obtained from which a random sample of 230 was taken a not exclusion criteria, based on sample size calculations, as follows. The representative sample size were calculated by the one population group formula:

$n_0 = [(z_{\alpha}^2)(P)(Q)]/d^2$, when n_0 = the size of representative sample, Z_{α} = confidence level (95%), P = assumed proportion (23.33%), the proportion of completeness of occupational history (including occupations, job descriptions, and occupational health hazards) recorded by physicians, $Q = 1 - P$ (76.67%), d = acceptable difference (absolute difference 5%). The result is $n_0 = 274.86$. Next calculated by the sampling frame formula: $n = (n_0)/[1 + (n_0/N)]$, when N = population size (1,366). The result is $n = 230$.



Data collection

The research was carried out between 17th February and 26th March 2014. A recording form was developed to collect 1) personal bio-data, and, 2) detailed occupational history from the medical records. The record form was verified by three occupational health experts with an index of Item-Objective Congruence (IOC) of 0.95. The study collected potentially work or occupational disease related data from the records. If a patient had received treatment several times, data from his/her last consultation was recorded. The studied hospital changed the existing list of occupations to comply with the International Standard Classification of Occupation (ISCO-08) in which they would alert physicians and related personnel to carefully take occupation histories.

Data analysis

All data record forms were coded with a 3-digit number, and data was independently double entered into a spreadsheet for analysis using Epi info (v3.4 for Windows), and SPSS (v19 for Windows). Descriptive statistics were carried out to show frequencies and proportions, (95% confidence interval (95% CI)).

Operative definition

Completeness of occupational history: including occupations, job descriptions, and occupational health hazards recorded by physicians.

Ethical review

This research was reviewed and approved by Khon Kaen University Ethics Committee for Human Research (HE561464).

Results

The analysis of the 230 medical records found that most patients were women (n=129, 56.1%), aged between 40-49 years (n=82, 35.6%), followed by those aged between 30-39 years (n=68, 29.6%). The majority were married (n=147, 63.9%), followed by single status

(n=76, 33.0%). About a quarter had finished secondary school (n=56, 24.3%), though educational level was only noted for 22 percent of the sample (n=51). The majority lived in Khon Kaen province (n=199, 86.5%) mainly in Muang Khon Kaen District (n=148, 64.3%), with 35.7 percent outside Muang Khon Kaen District (n=51, 35.7%). A small number of patients came from other provinces in Northeast Thailand (n= 28, 12.3%).

Only 24.8 percent (95% CI: 18.0, 30.0) of physician recorded medical records had complete occupational histories. Physicians also had low rates of recording other combinations of occupational detail (i.e. occupations and job descriptions (n=78, 33.9%), occupations and occupational health hazards (n=84, 36.5%), and job descriptions and occupational health hazards (n=76, 33.0%). (Table 1)

Table 1 The proportion of the medical records with complete occupational history recorded by physicians (n=230)

Occupational History	n (%)	95% CI
Occupation, Job description, and Occupational health hazards	57 (24.8)	18.0, 30.0
- Occupation and Job description	78 (33.9)	27.0, 39.0
- Occupation and Occupational health hazard	84 (36.5)	30.0, 42.0
- Job description and Occupational health hazard	76 (33.0)	27.0, 39.0

The top five departments with highest proportion of complete occupational histories were, Occupational Medicine (n=4, 100.0%), followed by Otolaryngology (n=3, 75.0%), Psychiatry (n=3, 60.0%), Accident and Emergency (n= 22, 38.6%), and Medicine (n=4, 36.4%), respectively. The physicians who recorded most complete occupational histories, were physician instructors (n=38, 27.7%), followed by residents (n=15, 26.3%), and interns (n=4, 11.1%).

Patient occupation was recorded most by the medical records officers (n=229, 99.6%), with occupation recorded by physicians less than half of the time (n=105, 45.7%). Job description was also recorded by physicians less than half of the time (n=102, 44.3%), though occupational health hazards were most often recorded by physicians (n=206, 89.6%). (Table 2)

Table 2 The proportion of the medical records with occupational history (i.e. occupation, job description, and occupational health hazards) recorded by the medical records officers and physicians

Occupation, Job description, and Occupational health hazards	n (%)
Occupation recorded by the medical records officers	229 (99.6)
Occupation recorded by physicians	105 (45.7)
Job description recorded by physicians	102 (44.3)
Occupational health hazards recorded by physicians	206 (89.6)

The job titles recorded by the medical records officers, from most to least, were; employed (n=85, 37.1%), followed by self-employed (n=42, 18.3%), temporary employee (n=30, 13.1%), factory worker, or corporate employee (n=12, 5.2%), and farming (n=11, 4.8%),

respectively. However, physician-recorded job titles ranging from most to least, were; employed (n=20, 19.0%), followed by factory worker (n=11, 10.5%), self-employed (n=10, 9.5%), temporary employee (n= 8, 7.6%), and farming, or cleaner (n= 7, 6.7%), respectively. (Table 3)

Table 3 The proportion of the medical records with job titles recorded by the medical records officers and physicians

Job titles recorded by the medical records officers	ISCO-08	n=229	%
Employed	962	85	37.1
Self-employed	962	42	18.3
Temporary employee	962	30	13.1
Factory worker	962	12	5.2
Corporate employee	331	12	5.2
Farming	921	11	4.8
Other job titles: each job titles 1 or 2 patients	Other	37	16.3
Job titles recorded by physicians	ISCO-08	n=105	%
Employed	962	20	19.0
Factory worker	962	11	10.5
Self-employed	962	10	9.5
Temporary employee	962	8	7.6
Farming	921	7	6.7
Cleaner	91	7	6.7
Other job titles: each job titles 1 or 2 patients	Other	42	40.0

The proportion of the medical records that matched with the original occupations presenting on the medical records, was low (n=56, 24.3%), while unmatched occupations were (n=48, 20.9%), and no occupation information was recorded for over half (n=126, 54.8%). Job descriptions recorded by physicians, included cleaner, and transplant rice seedlings (n=7, 6.9%), followed by steel cutting, working with computers, accountant, and construction (n=4, 3.9%), etc., and some physicians recorded more than one job description (n=2, 2.0%).

The top five occupational health hazards recorded by physicians, from most to least, were: lifting heavy items (n=45, 21.8%), followed by sitting for a long time (n=23, 11.2%), bending down and looking up (n=17, 8.3%), acting repeatedly (n=15, 7.3%), and standing for a long time (n=13, 6.3%), respectively. Physicians had also recorded more than one occupational health hazards (n=37, 18.0%). In addition, if the physicians took detailed occupation (specific occupation), the occupational health hazards were obtained more completely. (Table 4)

Table 4 The proportion of the medical records with job description and occupational health hazards between unspecific occupation and specific occupation recorded by physicians

Occupation	n=105	Job description n (%)	Occupational health hazards n (%)
Unspecific Occupation			
Employed	20	10 (50.0)	14 (70.0)
Factory worker	11	8 (72.2)	9 (81.8)
Self-employed	10	4 (40.0)	7 (70.0)
Temporary employee	8	4 (50.0)	5 (62.5)
Farming	7	3 (42.9)	4 (57.1)
Specific Occupation			
Cleaner	7	7 (100.0)	7 (100.0)
Sewing clothes	5	5 (100.0)	5 (100.0)
Corporate employee	4	4 (100.0)	4 (100.0)
Labor	3	3 (100.0)	3 (100.0)
Welder	3	3 (100.0)	3 (100.0)
Accountant	3	3 (100.0)	3 (100.0)
Trade	3	3 (100.0)	3 (100.0)
Electrician	2	2 (100.0)	2 (100.0)
Carpenter	2	2 (100.0)	2 (100.0)
Launder employee	2	2 (100.0)	2 (100.0)
Nurse	2	2 (100.0)	2 (100.0)
Bank employees	2	2 (100.0)	2 (100.0)
Other (11 specific occupations)	11	11 (100.0)	11 (100.0)

Many physicians recorded occupational health hazards but not occupation (n=121, 96.8%), followed by recorded occupational health hazards with occupation (n=85, 80.9%). Most recorded occupational health hazards but not job descriptions (n=121, 96.8%), followed by recorded occupational health hazards with job description (n=85, 80.9%). (Table 5)

Other occupational history information recorded by physicians, included work duration (n=27, 11.7%), followed by personal protective equipment (n=15, 6.5%), name of workplaces (n=13, 5.7%), exposures (n=12, 5.2%), start and stop years (n=11, 4.8%), companies' business and employment status (n=8, 3.5%), identified as

work-related and/or occupational diseases (n=6, 2.6%), Number of employees, business size and diagnosis dates were not recorded by physicians. Patients received treatment by separate departments, from most to least, as; Orthopedics (n= 73, 31.7%), followed by Accident and Emergency (n=57, 24.8%), General Practice (n=24, 10.4%), Rehabilitation Medicine (n=21, 9.1%), and Medicine (n=20, 8.7%), respectively.

The most common treatment by chief complaint, from most to least, were; back pain (n=75, 32.6%), followed by lumbar pain (n=22, 9.6%), sore eyes (n=15, 6.5%), rash (n=12, 5.2%), and elbow pain (n=9, 3.9%), respectively.

Table 5 The proportion of the medical records with occupational health hazards recorded or not recorded occupation and job description by physicians

Occupation and Job description	n	Occupational health hazards
		n (%)
Occupation		
Recorded	105	85 (80.9)
Not recorded	125	121 (96.8)
Job description		
Recorded	102	79 (77.4)
Not recorded	128	127 (99.2)
Recorded Occupation, and Job description	78	57 (73.1)

Work-related or occupational disease diagnoses recorded by physicians, from most to least, were; musculoskeletal disorders (n=147, 64.0%), followed by cuts and lacerations (n=23, 10.0%), eye disorders, and foreign body of cornea (n=21, 9.1%), allergic, irritant contact dermatitis, and urticaria (n=14, 6.1%), and mental, and behavioral disorders (n=6, 2.6%), respectively. Some physicians recorded more than one diagnosis of work-related or occupational diseases per patient (n=6, 2.6%).

The proportion of the medical records of social security patient with tendency of work-related or occupational diseases, found that the most possibility it was the work-related or occupational diseases (n=206, 89.6%), followed by it was possible that it was the work-related or occupational diseases (n= 24, 10.4%).

Work-related or occupational disease diagnoses were made by physician instructors (n=137, 59.6%), followed by residents (n=57, 24.8%) and interns (n= 36, 15.6%) respectively.

Discussion

This study investigated completeness of out-patient medical records for patients with potentially work-related injury and/or occupational diseases at Srinagarind Hospital, Faculty of Medicine, Khon Kaen University. Complete record keeping has important

implications for work-related injury and/or occupational disease diagnoses and patient care planning, and patients' allocation of appropriate social security or workmen's compensation funding entitlements.

The study's most notable finding was the very low proportion of complete occupational histories in the medical records: physicians only recorded complete histories in a quarter of the cases. They also had very low recording rates for sub-sets of occupational histories (i.e. occupations and job descriptions (33.9%), occupations and occupational health hazards (36.5%), and job descriptions and occupational health hazards (33.0%). This finding was very similar to Politi, et al⁶ findings in a US university teaching hospital where complete occupational histories were recorded in only 27.8% of 2,050 cases.

In our study, the physicians did, however, recorded occupational health hazards in the majority of cases (89.6%). Their much lower rates of other occupational detail in the clinical notes may be due to such data already being recorded on the administrative front page of medical records. For example, 99.6% of the medical records included the patients' occupation already recorded there by the medical records officers.

History taking and physical examination are considered important for diagnosis, with history taking the most important, backed up by physical examination

and laboratory tests⁸. Politi, et al.⁶ found that physicians' general history recordings included gender (99.9%), age (99.1%), patients' smoking (78.2%), and family cancer (42.9%). It was also found that almost all of these variables correlated with patients' occupations. However, in our study we found that the patients' general history (e.g. gender, age, education level, marital status and birthplace) were recorded by medical record officers on the first page of each medical record and physicians rarely recorded their patients' general history. This is consistent with a study conducted by Thammaroj, et al.⁹ who found that general histories of 91.5% of the patients were recorded by medical record officers or nursing staff. Jandaeng, et al.¹⁰ also found that 88.9% of the general histories were recorded by the medical records officers.

We found similarity in rates of complete occupational health history taking between physician instructors (27.7%) and residents (26.3%). In contrast, physician instructors diagnosed work-related or occupational diseases in 59.6% of the medical records. Residents only diagnosed work-related or occupational diseases in 24.8% of the medical records. The higher diagnosis rates for physician instructors could be due to their larger clinical experience than residents, 14 years on average. Another possible reason is that the occupational history data are not traditionally included in medical records or that occupational factors are not included in teaching other subjects¹¹.

Another reason for low recording of occupational health information may be consultation time constraints due to high patient through-put. Phadungthot, et al.¹², found that the physicians of the Thai Ministry of Public Health worked 90-120 hours per week, but with limited time with each patient. The shortest time contact for simple in-patient treatment was four minutes and for a new patient was seven to nine minutes. However, over 10 minutes could be taken with a patient with complicated problems⁸. According to the National Ambulatory Medical Care Survey conducted during 1991-1992, the physicians spent 16.3 minutes to

treat a patient. In 2000, it was found that physicians used 18.9 minutes to treat a patient. They took 20.8 minutes to treat a patient in 2010¹³.

The department with most complete occupational history records (100%) was occupational medicine clinic as this department had occupational medicine specialists with expertise in treating working-aged patients¹⁴. It was also found that the occupational medicine specialists diagnosed all patients' work-related or occupational diseases. The occupational medicine specialists do not diagnose all patients as occupational diseases or work-related disease because the diagnosis of occupational or work-related disease depends on evidences that follow the criteria for diagnosis occupational diseases.

Medical records officers and physicians used many unspecific job titles such as: self-employed, factory worker, and farmer. With fewer specific job titles, such as: cleaner, welder, electrician, and carpenter. This is possibly because physicians rarely knew the details of their patients' occupations. Sometimes people had health problems that were difficult to diagnose thus patients' hobbies could also be important in the occupational history taking^{15,16}. Unspecific job titles (e.g. farmer, and self-employed) are not enough for diagnosing work-related or occupational diseases, and even more specific descriptions are insufficient (e.g. soldier, engineer, teacher, and electrician). Thus occupational history taking will be most useful if full job descriptions and occupational health hazards details are recorded¹⁷⁻¹⁹.

The proportion of consistent occupation records by medical records officers and physicians was 24.3%, while that of unmatched occupations was 20.9%. Possibly patients had changed occupations, between visits, or, for example some had been students, but were now working. No occupation information was recorded over half of the time (54.8%) by physicians, but only (0.4%) by medical records officers. A possible reason for physicians low recording rates may be because data was already recorded on the first pages of the medical records, or the medical

record forms did not have space to record additional occupation history.

Ramazzini¹⁵ recommended all physicians ask their patients "What is your occupation?" in order to improve diagnoses. Cegolon, et al²⁰ has argued for four further questions: 1) what is the time lag between the initial exposure and the start of the symptoms? 2) do the symptoms improve if the patient is not exposed any longer (e.g. if he/she changes work duties or is on holiday? 3) do the symptoms worsen if the patient carries out specific duties or works in areas characterized by high levels of exposure? 4) are colleagues affected by the same symptoms related to the same exposure? Medical record and database systems could assist in prompting fuller occupational health details by being redesigned with blanks for physicians to fill in fuller job descriptions and occupational health details²¹.

The department with the highest proportion (31.7%) of social security patients was the Orthopedic Department, though complete occupational health recording was extremely low, only 8.2%. If physicians are predominantly treatment focused then patients could be treated without eliminating the problem's cause⁶ with recurrent episodes in future. Disease prevention, health promotion and rehabilitation should be emphasized when treating working-aged people since their problems could be prevented²².

The department with the second highest proportion (24.8%) of the social security patients was the Accident and Emergency Department with 40.4 percent complete occupational histories. There were less doubts about job-related causes of cuts and open wounds reflected in higher rates of Workmen's Compensation Fund³. but less clear with musculoskeletal disorders that required complicated diagnoses. Rates of physician-recorded musculoskeletal disorders were high (64.0%) in this study similar to US studies by Schulte²³, Pai²⁴, and Morse²⁵ which ranged from 37.0% - 62.0% of their participants.

Conclusion and recommendations

This study supports previous findings that rates of complete occupational health history taking by physicians are very low, much lower than occupation details recorded by medical records officers. This may be influenced by a variety of factors, including some data already recorded on medical record sheets before consultations take place, medical data collection form design, limited consultation time available for patient interactions, and/or less holistic and overly symptom/treatment focused approach to history taking and patient care. Complete occupational health history taking and recording is important for individual diagnosis and effective patient care plans and patients' appropriate access to funding entitlements. This study has implications for design and management of medical record data systems, consultation time management, and pre-service and ongoing education needs for health professionals.

Limitations of this study

This study the proportion of medical records with the completeness of occupational details recorded in the medical records of out-patients with potentially work-related injuries and/or occupational diseases of the same hospital, it could not be representative of other hospitals. It is a study of secondary data, the data is saved. It may cause problems in the interpretation of data.

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