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Hospital admission interviews are time-consuming with several interruptions

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ABSTRACT

INTRODUCTION: The admission interview is an important procedure to reduce medication errors. Studies indicate that physicians do not spend much time on the interview and that the major obstacles are lack of time and heavy workload. The aim of this study was to measure the time physicians spend on admission interviews and to describe factors that affect time consumption.

MATERIAL AND METHODS: This time study was conducted at an acute medicine department. Physicians conducting admission interviews were observed, and time consumption was recorded.

RESULTS: Fifty admission interviews were observed; they lasted an average of 45 (range 8-84) minutes. The effective time consumption was 32 (range 7-59) minutes. Fifteen (range 3-41) minutes were spent on actually interviewing and examining the patient and compiling the medication history. It took zero to five (mean 2.2) minutes to collect the medication history. The number of interruptions per interview was zero to nine (mean two); they were mostly caused by phone calls from physicians or nurses or by nurses asking for advice on problems with other patients. The mean duration of an interruption was 7.1 minutes.

CONCLUSION: Physicians spend an average of 45 minutes on admission interviews and are interrupted up to nine times. Only a few minutes are spent on collecting the medication history. Though the quality of the interviews and the actual error rate were not assessed, the observed working conditions may imply a high potential for medication errors. **FUNDING:** not relevant.

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To ensure that the patient receives the correct treatment and to prevent medication errors on admission to hospital, the admission interview is crucial. It serves to collect information regarding the patient's symptoms, medical history as well as medication history and adherence [1].

A complete medication history should include all details of the patient's prescribed medicine, over-thecounter medicine and any other alternative medicine. Furthermore, information about allergies, previous illness and treatment should also be included [2, 3]. An incomplete or absent medication history may cause medication errors, most frequently prescription and omission errors [3, 4]. Newly qualified physicians have less experience, less knowledge about prescribing and thus a higher risk of causing these errors than more experienced physicians [5, 6].

Compiling a complete medication history is timeconsuming [3]. Tam et al found that physicians required 9-30 minutes to obtain a medication history [7]. In another study performed at a Danish hospital, the admission interviews took 7-10 minutes [8]. A high patient turnover and considerable time pressure may impede the collection of complete medication histories from all patients [9]. Moreover, frequent interruptions and disturbances, which demand substantial multitasking by physicians, markedly increase the risk of medication errors [10, 11].

This time study was conducted to measure the time physicians require to conduct an admission interview in an acute medicine department and to describe factors that influence time consumption such as interruptions.

MATERIAL AND METHODS

This study was conducted in a 90-bedded hospital in Region Zealand with an annual admittance rate of 9,000



ORIGINAL ARTICLE

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Admission interviews last an average of 45 minutes and are interrupted up to nine times.

Classification of the total and effective time consumption during admission interviews.



🚄 | FIGURE 2

Time consumption during 50 admission interviews lasting eight to 84 minutes (mean 45 minutes).



patients. The data were collected between March and May 2011 in the Acute Medicine Department. On weekdays between 9 am and 4 pm, an observer followed the attending medical physician and observed admission interviews with medical patients. The observer was a fifthyear pharmacy student. The patient's age, daily prescribed pharmaceutical drug intake and diagnoses were recorded. The physician's clinical experience was also recorded. The observer recorded observations and time spent on various tasks on a standardised observation survey form based on the hospital's guidelines for admission.

The observer used a stopwatch and measured the time from the physician entered the examination room until the physician had dictated the case notes. Both total and effective time consumption was recorded (Figure 1).

Effective time consumption was defined as the time spent by the physician on completion of the admission interview, including the time used to examine the patient, prescribe and dictate the medication note and compile the medication history by listing drugs and respective doses. The total time consumption was defined as effective time plus the time spent on other tasks such as phone calls, small talk with nurses, or non-medicine related talk with the patient's relatives. The time spent collecting the medication history, entering drug prescriptions into the Electronic Medication Module (EMM) and dictating medication notes was recorded separately. Additionally, the number of interruptions and their causes were also recorded.

During the study period, the EMM software in use was OPUSMedicin version 6.4.1-6.5.1 supplied by CSC Scandihealth. The Shared Medication Record (FMK) was not implemented at the time; hence, no electronic decision support for the medication history was available through the EMM.

Statistics

Excel 2010 (Microsoft Office Excel) was used for data entry and descriptive statistics.

Trial registration: not relevant.

RESULTS

Fifty patient admission interviews conducted by 17 physicians were observed. The patients' mean age was 69.9 years (range 33-89 years), 56% were females. The mean number of drugs used per patient was 7.7 (range 0-21 drugs). Newly qualified physicians conducted 82% of the admission interviews. The distribution of the time required for the various tasks of the admission interviews is shown in **Figure 2**. The mean time required for interviewing, examining and compiling the medication history was 15 minutes (range 3-41 minutes). Compiling the medication history took zero to five minutes (mean 2.2 minutes). When a drug list from the family physician, nursing home, or clinical pharmacist was available, compiling the medication history took zero to five (mean 1.6) minutes.

Thus, five minutes were required for a medication interview with a patient who used eight drugs on admission, while 0.5 minutes were spent on a patient taking 21 drugs.

It took the physicians zero to 19 (mean 4.4) minutes to enter the prescriptions into the EMM system depending on the number of drugs. The longest period required for prescription of medicine was 19 minutes for a patient who had not been hospitalised recently and who used 21 medications. Dictating the medical record took 0-26 (mean 12) minutes.

The average total time consumption was 45 minutes (range 8-84 minutes), while the average total effective time, i.e. the time used to complete the admission interview including medication history and examination, prescription in the EMM and dictation of the medical record, was 32 minutes (range 7-59 minutes). Total and effective time consumption by number of drugs used on admission are shown in **Figure 3**.

The mean time spent on interruptions and other tasks was 13 minutes per admission interview. A total of 98 interruptions were recorded during the 50 interviews (mean two per interview (range 0-9), and the median duration of an interruption was six minutes (range 1-17 minutes). Two reasons for interruptions were predominant 1) nurses asking for advice on another patients (31.6% of the interruptions) and 2) phone calls from other physicians or nurses about problems with patients (25% of the interruptions).

DISCUSSION

In this acute medicine admission department, the physicians used anywhere from a few minutes to approximately 1.5 hours to complete an admission interview and were frequently interrupted while doing so. The recorded effective time consumption was in line with that reported in previous studies [3, 7, 12]. Various factors such as interruptions, numbers of drugs and the physician's level of experience were included in the study to assess their effect on time consumption. It was, however, not possible to determine the effect of seniority on the time consumption because recently graduated physicians performed 82% of the observed admission interviews.

The time spent on interruption and other tasks was considerable (29% of the total time consumption). Not only do interruptions prolong interviews, they may also distract the physician from the task and make it difficult to focus on one task such as collecting the correct medication history or following the hospital guidelines [10, 13]. Several of the interruptions lasted more than five minutes, which is long enough to make the physician loose focus, forget or mix up important information on the patient. The longer an interruption lasts or the more similar it is to the primary task, the more disturbing it is for the physician [14]. Still, physicians working in acute medicine departments are frequently interrupted. Thus, acute medicine physicians can expect 6-15 interruptions every hour [11] or one interruption every 9th or 14th minute [10].

In an analysis of physicians' prescription errors, Dean et al used human error theory and found that for physicians, there were several important, potentially error-creating conditions: heavy individual workload, pressure to finish quickly and the need to attend to another patient [15, 16]. The latter was one of the major causes of interruptions in our study. In order to avoid prescription errors at hospitals, Coombes et al suggested that hospital staff should ensure that prescription takes place without interruptions of any kind [16]. On the other hand, interruptions may be beneficial or error-reducing for the other patient who receives immediate attention from the physician [14].

Still, frequent interruptions of admission interviews, swift and superficial medication histories, and a heavy workload have been recognised as potential causes of in-hospital medication errors [16, 17]. Although it might be impossible to avoid interruptions and allow physicians to complete one task before others are presented, it seems possible to reduce the number of interruptions, for example by developing local guidelines or policies [16]. Whether a no- or low-interruption policy actually reduces the number of errors needs to be substantiated in future studies.

This study has a number of limitations. Firstly, it was carried out at only one acute medicine department. Secondly, only one person observed and recorded the interviews. Thirdly, being observed may have affected the physician's behaviour [18]. Furthermore, the observations were only carried out during the daytime on weekdays and primarily involved recently graduated physicians. Finally, the study was designed as a time study and included no assessment of whether the recorded interruptions actually did distract the physicians and hampered patient safety or the quality of the admission interviews. Fourthly, we did not assess the quality of the drug history.

CONCLUSION

Despite these limitations, this study shows that the observed physicians required from a few minutes to approximately 1.5 hour to complete an admission interview and were interrupted up to nine times while doing so. Moreover, medication histories were collected swiftly. 29% of the total time consumption was spent on interruptions and other non-patient related tasks, most

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Time consumption during 50 admission interviews by the number of drugs used by the patients on admission. The total (red square) and effective time (blue diamond) consumptions by the number of drugs used by the patient on admission to hospital.

Time, minutes



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often because other patients needed attention. The observed working conditions may imply a high potential for distractions and medication errors. The degree to which patient safety is hampered should be the scope of future studies.

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