Research Note

Deficiencies in hospital inpatient medical records

Sukumar Mahesan[1], Ahmad Tajuddin Jaafar[2], Cheow Peng Lee[2], Boon Chong Se To[1] and Kevin Moissinac[1,3]
[1]Hospital Pulau Pinang; [2]Ministry of Health Malaysia; [3]Penang Medical College. (Correspondence: Dr K Moissinac; e-mail: kmoi@tm.net.my)

Introduction

Inpatient Medical Records are meant to document the chronological picture of a patient's illness and treatment while in hospital. They can serve as: (i) a means of communication between different clinicians involved in the patient's care, (ii) a reference for subsequent clinical management, (iii) a database for retrospective clinical audits and reviews, (iv) a medium which can be used to screen for adverse events in clinical treatment (Wolf & Bourke, 2002), and (v) a parameter in quality assurance evaluation. As part of a quality assurance evaluation exercise, a retrospective study was undertaken to evaluate the medical records of patients discharged from Ministry of Health hospitals to determine whether there were, and to identify any areas of deficiency.

Materials and Methods

Medical Records were randomly selected from a group of patients who were discharged (over a six month period) from one general hospital, two district hospitals with specialist services and six district hospitals without specialist services for analysis. The number of records selected from each hospital was proportional to the number of discharges from the respective hospitals over the 6 month study period.

Twenty nine items were evaluated to determine whether information about them were present in the medical records. These included personal particulars, admission details, clinical details, progress notes, results of diagnostic procedures, treatment notes and discharge details. A score of 1 was allocated when information about the evaluated item, including its unavailability where applicable (e.g. telephone numbers) was available in the medical record. A score of 0 was allocated when information about the evaluated item was absent. The total score (out of a possible maximum of 29) was expressed as a percentage for analysis (maximum 100). Each of the 29 evaluated items was also evaluated for the frequency of their presence in the medical records.

Results and Discussion

In this study, the availability of information from medical records was evaluated. The accuracy of the information and the quality of the information available was not evaluated. The 384 medical records were randomly selected from nine Ministry of Health hospitals, in proportion to the number of discharges from the respective hospital during the 6 month study period (Table 1). The distribution of scores attained is shown in Fig. 1. Only 28 (7.3%) and 111 (29%) of the records evaluated attained a score of 100 and > 90 respectively. The majority (58.5%) attained scores of 80-89 with only 4 (1%) attaining a score of < 70 (Table 1).

Of the 29 items evaluated, only 22 (75.9%) were present in > 90% of the medical records (Table 2). Information about the patient's home telephone number was available in only 37.2% of the medical records. This included: (i) telephone number when the patient had a telephone at home and (ii) an indication in the medical record, where appropriate, when the patient did not have a telephone number at home. There was no information in 62.8% of the medical records, as to whether the patient had a telephone at home.

Information as to who was the patient's next of kin was available in only 61.8% of the medical records. This perhaps could be due to the patient and/or the relative's reluctance to nominate a next of kin. Other items found lacking in the medical records included the past medical history, the patient's clinical conditions on discharge and the time of discharge which were only available, respectively in only 69.6%, 78.1% and 65.1% of the medical records.

Medical records and discharge summaries (which are almost always based on the medical records) have been reported to contain large numbers of errors (Wilson *et al.*, 2001). Although the accuracy and quality of the information in the records were not evaluated in this pilot study, deficiencies in areas such as the past medical history, and the condition of the patient on discharge have been identified. It is probable that if the accuracy and quality of information had been evaluated, deficiencies in these would also have been found.

Strategies that have been advocated to improve medical records include an aide-memoire (Din *et al.*, 2001) and a pre-printed medical admission proforma (Intiza-Ali *et al.*, 2001). In addition to these, medical

Table 1. Hospitals, discharges, number of records selected and distribution of scores

Hospital (& type)	No. of discharges	No. of records selected randomly	No. of medical records and scores				
			100 (%)	90-99 (%)	80-89 (%)	70-79 (%)	< 69 (%)
A (General)	22,296	146	4 (2.7)	18 (12.3)	105 (71.9)	19 (13.0)	0 (0)
B (District with Specialists)	13,475	88	0 (0)	7 (7.2)	61 (69.3)	19 (21.6)	1 (1.1)
C (District with Specialists)	7,211	47	19 (40.4)	19 (40.4)	8 (17.0)	0 (0)	1 (2.1)
D (District)	4,965	33	0 (0)	4 (12.1)	23 (69.7)	6 (18.2)	0 (0)
E (District)	3,205	21	3 (3)	13 (61.9)	5 (23.8)	0 (0)	0 (0)
F (District)	2,459	16	0 (0)	1 (6.2)	14 (87.5)	1 (6.2)	0 (0)
G (District)	2,437	16	0 (0)	10 (62.5)	5 (31.2)	0 (0)	1 (6.3)
H (District)	1,965	13	1 (7.7)	8 (61.5)	3 (23)	0 (0)	1 (7.7)
I (District)	648	4	1 (25)	3 (75)	0 (0)	0 (0)	0 (0)
Total	**58,661**	**384**	**28 (7.3)**	**83 (21.7)**	**224 (58.5)**	**45 (11.7)**	**4 (1.0)**

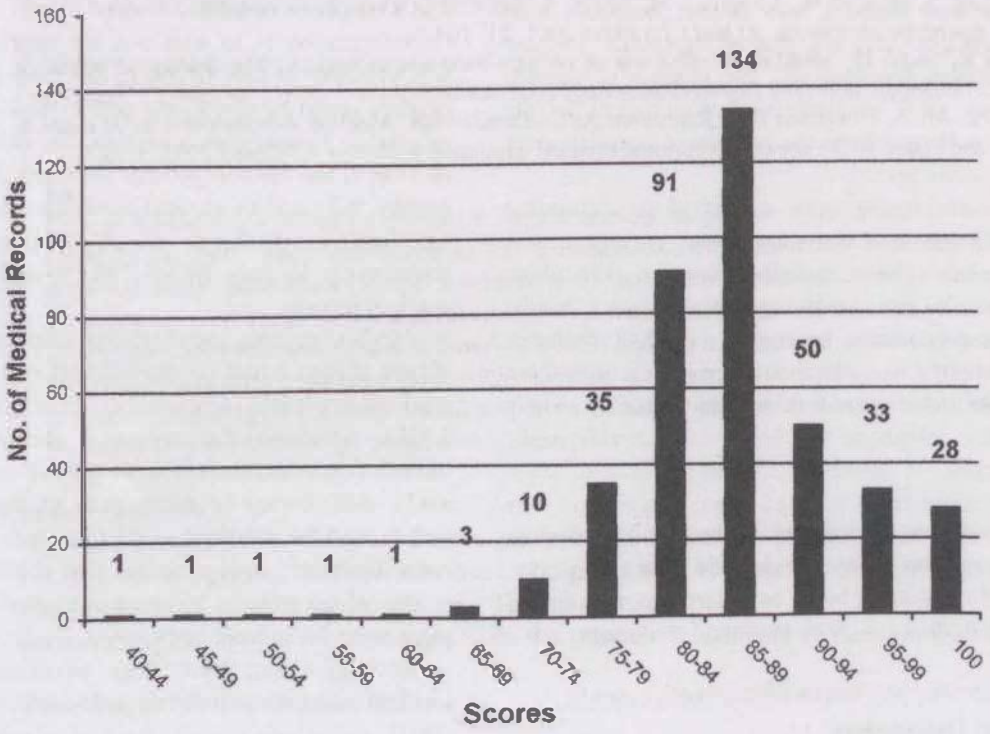

Figure 1. Distribution of scores attained

Table 2. Frequency of available information from medical records

Personal, admission and discharge particulars	%	Clinical details	%
Name	100	Presenting symptoms	97.1
Identity Card No.	100	History of present illness	96.3
Address	99.5	Past medical history	69.6*
Age	99.2	Physical examination	97.3
Sex	97.9	System review	87.4*
Race	95.0	Medical Officer's progress notes	99.8
Religion	76.7*	Nurses progress notes	99.8
Nationality	87.2*	Medical treatment notes	99.6
Tel. No.	37.2*	Nursing treatment notes	98.1
Next of kin	61.8*	Consent forms	100
Admission time	99.6	Haematological & biochemical results	96.8
Admission diagnosis	98.1	Radiological imaging records	99.8
Medical Officer's signature	91.4	Other procedures (biopsies, endoscopy, etc)	94.4
Final diagnosis	98.6		
Clinical condition on discharge	78.1		
Time of discharge	65.1		

* less than 90%

record officers appointed specifically to audit pre-printed admission proformas to ensure that they are adequately filled in, can help improve the content, accuracy and quality of medical records.

Limitations of this study were possibly its retrospective nature, the relatively small sample size and its restriction, in evaluating only, whether the information was present, but neither the accuracy nor quality of the information. Further studies encompassing larger samples which separate the medical records of patients according to the different medical and surgical specialities can perhaps highlight further areas of deficiency where remedial action should be directed to improve medical records.

Acknowledgement

The authors are grateful to the Director General, Ministry of Health, Malaysia for permission to publish this paper.

References

Wolff AM, Bourke J. Detecting and reducing adverse events in an Australian rural base hospital emergency department using medical record screening and review. *Emergency Med J* 2002; 19: 35-40.

Wilson S, Ruscoe W, Chapman M, Miller R. General practitioner – hospital communication: A review of discharge summaries. *J Qual Clin Pract* 2001; 21: 104-8.

Din R, Jenna D, Muddu BN. The use of an aide-memoire to improve the quality of operation notes in an orthopaedic unit. *Ann Roy Coll Surg Engl* 2001; 83: 319-20.

Irtiza -Ali A, Houghton CM, Raghuram A, O' Driscoll BR. Medical Admissions can be made easier, quicker and better by the use of a preprinted medical admission proforma. *Clin Med* 2001: 1: 327.