Help for house officers: EFCOS—the Ealing Hospital Firm Computer System

ABSTRACT—The Ealing Hospital Firm Computer System is a novel database system which has been designed to meet the needs of house physicians in a busy general medical unit. It is maintained exclusively by them and produces instant lists of all patients on their firm, with all relevant information needed to organise their clinical work. It has proved extremely popular, and its value to both junior and senior staff has been documented in an anonymous questionnaire survey. The system is available for distribution on a non-profit basis, and other colleagues are invited to use it.

House officers have to maintain lists of patients currently on their medical ‘firm’. The lists are usually scribbled in notebooks, or on untidy sheets of paper, with frequent amendments as patients are admitted or discharged. There have been few attempts to computerise this process, perhaps because most formal hospital computer systems are necessarily large and cumbersome, and primarily designed to collect patient data for management rather than to help medical staff. Data entry is usually undertaken by clerks or nurses rather than by doctors, and it is difficult to obtain the most salient information, particularly diagnoses and discharge plans, and present it to clinicians in a concise format.

I have therefore written a database program—the Ealing Hospital Firm Computer System—in close collaboration with house physicians at Ealing Hospital. The system is maintained exclusively by them, and provides them with a list of all their current patients, together with diagnoses and all the other essential data they need for routine ward work.

General design of the system

The program is written in FoxPro 2.0, and is installed on the Ealing Hospital computer network, which has terminals and printers on all wards and in the Accident and Emergency department. The data fields comprise the patient’s surname, forename, hospital number, date of birth, sex, ward, consultant, admission date, diagnoses (three fields), plans, and date of discharge or death. The date on which a patient becomes ‘social’ (defined as no longer needing an acute hospital bed), and the intended destination of ‘social’ patients (coded as either nursing home, residential home, transfer to a rehabilitation unit, or patient’s own home) is also recorded. Other items usually included in conventional hospital systems, notably the patient’s NHS number, address, and general practitioner, are omitted, since these data are not routinely useful to house officers, and their inclusion would slow data entry.

Patient details are entered on admission, and edited when, for example, details of diagnoses or ward change, or discharge plans become formulated. When patients leave the ‘firm’, either because of discharge or death, the date is entered into the relevant field. This removes the patient from the current firm list, but the record is still held on the database for subsequent analyses. The program is easy to learn (requiring only a five minute induction session with newly appointed house officers), simple to use, has full validation and error routines, and is reliable and robust. It has been used on all medical firms at Ealing Hospital since November 1993, and is also used on all surgical and orthopaedic firms in a modified version which records type and date of operation.

Practical uses of the system

The main purpose of the system is to provide an instant, neat and ordered list of all current inpatients on a medical firm, with as much useful information as possible (Fig 1). All the information for each patient is presented on a single line of compressed type, and details of up to 27 patients can be printed on one A4 page. The patients are listed alphabetically in ward order, for convenience of use on ward rounds. The patients’ ages, lengths of stay and numbers of ‘social’ days (if any) are automatically recalculated whenever a list is printed. One or more copies can be obtained from any terminal throughout the hospital.

The lists serve primarily to organise the daily work of a firm. Copies are given to all doctors at the beginning of a ward round and help to reduce the risk of overlooking any patient. Between formal rounds, the lists serve as a focus for ‘office’ rounds, at which particular patients can be discussed and tasks planned. They are also invaluable when completing request forms, because they contain full patient details, such as hospital number, date of birth and ward. The data on patients’ length of stay, and the number of ‘social’ days (if any), help to focus efforts on facilitating the discharge of long-stay patients. At multidisciplinary meetings, physiotherapists, occupational therapists, district nurses and social workers are also given copies of the current list, and they can then identify which patients

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need their assistance. The lists are also helpful in handing over patient details to other medical firms at weekends and bank holidays.

Questionnaire evaluation

In order to obtain the consumers’ views on the value of the Ealing Hospital Firm Computer System, an anonymous questionnaire was circulated to all 28 senior and junior staff (except the author) on the five general medical firms at Ealing Hospital and was completed by 24 colleagues: eight house physicians, eight senior house officers or registrars and eight consultants. They were asked to respond to the question ‘How useful do you find the lists in your routine ward work?’ on a scale of 0 (no use) to 10 (very useful). Eighteen (75%) of 24, including all house physicians and registrars, gave the maximum score of 10. The mean score was 9.6, and lowest was 8. The mean from the eight consultants was 9.2.

The house officers were asked ‘How easy was the system to learn at the start of your job?’ Four of the eight gave the maximum score of 10, the mean was 9.1, and the lowest was 8. To the question ‘How easy is it to keep your firm lists up to date?’ six gave a score of 10, and the other two gave 9. When asked ‘How much has the system helped you in your house job?’ seven out of eight responded with 10, and one responded with 8.

All staff were asked ‘What are the main practical benefits of the system to you?’ Eighteen of the 24,
including all house physicians, cited the value of having a current patient list in organising their ward work and in locating patients on different wards. Nine found the data on patients' length of stay and the identification of 'social' patients particularly useful. Five cited the value of having full patient details at hand for completing request forms or for obtaining pathology results. Two consultants emphasised the lists' value in multidisciplinary meetings. The hospital's clinical director cited the value of browsing through everyone else's lists! Answers from house physicians included 'keeping track of all my patients, and noting down all the things I need to arrange for them—much better than lots of bits of paper'; 'helps focus day's work, and ensures nothing is missed—aids organisation no end'; 'it would be impossible to remember all the patients admitted on take, and which ward they were in, without this system—the lists are indispensable'; and 'it makes it much easier to see at a glance where and how many patients you have, and what jobs need being done'. Answers from senior house officers included 'being aware of patient numbers and whereabouts, being able to plan ahead re tests, having patient details available all the time—can write forms without referring to the notes'; and 'resume of patients, identification of longstay/social problems, somewhere to write your "things to do"'. Answers from registrars included 'up-to-date list of patients helps to plan management more efficiently', and 'full list of patients and details, with quick reminder of cause of admission, and feedback on length of stay and social days'. Answers from consultants included 'jogs memory—at a glance view of firm's inpatients, reference for things to do, patients to see in between main ward rounds'; and 'gives structure to ward rounds, helps to avoid missing patients, and helps the multidisciplinary team'.

Discussion

The success of a database system ultimately depends on whether the benefits to the users outweigh the chore of data entry. This system has proved successful in everyday use because the value of possessing full, current, neat and informative patient lists is self-evident to both junior and senior staff. This has been amply confirmed in the overwhelmingly positive response recorded in the anonymous questionnaires. The survey also demonstrated that house officers found the system easy to learn, and that it was easy to keep the lists up to date. The time taken to maintain the database has been kept as short as possible by using only a few data fields and a fast database program, and by the use of function keys to facilitate data entry.

The system is used at Ealing Hospital in parallel with a large hospital database management system maintained by clerical and nursing staff for management purposes. There is no overlap or conflict of interest between the two systems because the system described is designed solely for the limited objective of producing lists to help medical staff organise their ward work. Incorporation of this simple and effective system into larger and more clumsy hospital systems would inevitably reduce its value to house officers for whom this system has been written. Similarly, no disease classification system has been incorporated into the diagnoses fields, since this would also impede date entry; instead, the choice of diagnostic terms is left to the house physicians, with much use of common and convenient abbreviations, such as 'MI', 'CCF' or 'COAD' and occasional idiosyncratic Ealing diagnoses, such as 'Acopia'—defined as an inability to cope!

The cooperation of the information technology department has been invaluable in installing the program on the hospital network. It will function equally well on a single personal computer, but its widespread availability throughout the hospital via the network is a significant practical advantage because patient details can be entered on admission in Accident and Emergency and the records subsequently edited, and new lists obtained, on the wards.

The program is available for use in other hospitals on a strictly non-profit basis. Individual copies can be customised, so that the appropriate consultant and ward names appear on the lists. The program will be supplied on a disk, with easy installation, and a brief instruction manual. Other colleagues are warmly invited to experiment with the use of this novel system.

Acknowledgements

I thank the house officers of Ealing Hospital for helping with the development of the system, and Mr Antoine Tabone and Mr John Blakesley for installing the program on the Ealing Hospital computer network.

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