

- 33 Ladrigo-Ignacio L, Climent CE, de Arango MV, Baltazar J. Research screening instruments as tools in training health workers for mental health care. *Trop Geogr Med* 1983;35:1-7.
- 34 World Health Organisation. *A manual on child mental health and psychosocial development. I. For the primary health care physician. II. For the primary health worker. III. For teachers. IV. For workers in children's homes.* New Delhi: WHO, 1982.
- 35 Essex B, Gosling H. *Programme for identification and management of mental health problems.* (Tropical health series.) Edinburgh and London: Churchill Livingstone, 1982.
- 36 World Health Organisation. Mental health care in developing countries: a critical appraisal of research findings. *WHO Tech Rep Ser* 1984;No 698.
- 37 Hassler FR. Evaluation of mental health services. In: Baasher TA, Carstairs GM, Giel R, Hassler FR, eds. *Mental health services in developing countries.* Geneva: WHO, 1975.
- 38 World Health Organisation. *Managerial process for national health development.* Geneva: WHO, 1981.
- 39 Lishman WA. *Organic psychiatry. The psychological consequences of cerebral disorder.* Oxford: Blackwell Scientific, 1978:182-3.

#### Suggestions for further reading

*Tropical Doctor*: Issues July 1983 to April 1985 contain a series of articles on the recognition and management of mental illness in adults and children for the general doctor working independently and far from advanced medical centres.

- Asuni T, Swift CR. *Psychiatry in an African setting.* (Mental health: rural health series.) Nairobi: African Medical Research Foundation, 1977.
- Swift CR. *Mental health: a manual for medical assistants and other rural health workers.* Nairobi: African Medical and Research Foundation, 1977.
- Barker P. *Basic child psychiatry.* 4th ed. London: Granada, 1983. (Paperback £7.95.) Principles and practice that can be adapted to the Third World.
- Essex B, Gosling H. *Programme for identification and management of mental health problems.* (Tropical health series.) Edinburgh and London: Churchill Livingstone, 1982. (Softback £2.30.) Carefully evaluated and practical flow charts especially useful in teaching health staff who will work in isolation.
- World Health Organisation. Organisation of mental health services in developing countries. *WHO Tech Rep Ser* 1975;No 564. Basic document for all health teachers and administrators.
- World Health Organisation. Mental health care in developing countries: a critical appraisal of research findings. *WHO Tech Rep Ser* 1984;No 698.

The following publications illustrate that mental health is a broad, positive concept and not simply the absence of mental illness. They are helpful in provoking staff to think beyond hospital walls.

- World Health Organisation. *Promoting health in the human environment.* Geneva: WHO, 1975.
- World Health Organisation. *Social dimensions of mental health.* Geneva: WHO, 1981.

## Writing it down

PAUL SNELL

In medical practice it is all too easy to drown in paperwork or, at the other extreme, to jeopardise the results of a job well done by leaving vital facts unrecorded. In developing countries it is particularly necessary to avoid wasting time and making inaccurate or unnecessary records, so what are the arguments in favour of keeping medical records? What is the best form on which to record information? Who should record the information? And, finally, who should keep the records?

### Why keep records?

Records are needed to aid management of individual patients and for obtaining information for epidemiological purposes. The latter was the subject of Dr Peter Cox's article in this series (16 June, p 1814) so in this article I will concentrate on the requirements for individual patient management. In my view records serve three purposes, which may be reflected in separate documents or combined in two as described here:

- (1) To give to whoever may attend the patient at an accident the bare essentials that may prove useful for emergency treatment.
- (2) To give to the patient (or his family or friend) information that he needs to play his part in restoring or maintaining his health.
- (3) To remind or inform the doctor (or other health worker) of the diagnosis, medical history, previous investigations, etc, so that at any future encounter information on what has previously been found and done is readily available.

### Which form?

The conflict in keeping good medical records lies between completeness and accessibility, and in my experience the extremes are an encyclopaedic dossier that is filed in the bowels of a teaching hospital and a simple record of an event in the form of a tattoo or a scar. Other considerations include the time it takes to fill in the form and the degree of skill required to complete the record. Accuracy and confidentiality are also important. The ideal solution to good record keeping will vary because of the widely different circumstances of district hospitals in the Third World. Nevertheless, the system described below may prove of interest. It was devised (after drawing on many people's ideas,<sup>1</sup> and with some juggling and

refining over 15 years) in a mission hospital in the Ivory Coast. The work of the hospital and its health workers included providing an extended village programme and many hundreds of patients were seen each day.

### WALLET CARD FOR THE BARE ESSENTIALS

For a card to have any chance of being read at the scene of an accident it must be brief, and it should be kept with the identity card in those countries that have them. The essential items to include are: blood group; state of tetanus immunisation (and advice concerning boosters or serum in case the victim has dirty wounds); allergies; relevant medical disorders—for example, diabetes; regular medication—for example, steroids. Nevertheless, the cards may not be read and, even if they are, may not be acted on, so their value needs to be assessed with a degree of scepticism.

### OUTPATIENT RECORDS KEPT BY THE PATIENT

We found the best form of outpatient record to be a single document kept by the patient. Single because if information is dispersed over two or more documents they do not receive equal attention in a rapid consultation. Thus we found that if a child's weight was recorded on a chart on a different piece of paper from that on which clinic notes were recorded (albeit kept in the same plastic envelope) one or the other record sheet was neglected.

Letting the patient keep the record has distinct advantages, because time is saved by not having to hunt for notes when the patient returns to the outpatient department and because information is always available wherever the patient presents, be it at the village, local health centre, or hospital. There is also the advantage that the patients get concerned more directly with their own health. Furthermore, entrusting the record card to the patient implies a degree of respect and trust that should facilitate communication and cooperation with health service staff.

The possible objections to a single document are threefold:

- (1) space for writing notes is cramped;
- (2) the patient may lose his card;
- (3) the patient may read information that it might be better to withhold from him.

For these reasons we experimented with keeping a separate card, which was kept in the hospital, for all those patients who saw a doctor (as opposed to a nurse practitioner). We soon gave this up, however, because it created a sharp distinction between the doctor's and other people's consultations, and on a simple time and motion basis it meant writing notes twice.

FIG 1—Outpatient record (under 5s version). When folded in three the front becomes sections 2, 3, and 4; the back is sections 5, 6, and 1.  
 Section 2: Weight chart from birth to 5th birthday; monthly until 3rd birthday, two monthly thereafter. On the four lines at the top, marked by letters A, B, RF, P (B, P, FM, M in English), ticks in the appropriate column indicate that the child is breast feeding, taking maize porridge or an equivalent supplement, sharing in the family meal, and has been given malarial prophylaxis for the coming month.  
 Section 3 and 4: Clinical notes of each visit. Medicines prescribed and dispensed. At the top of section 3 details of chronic disorders or reasons for the need for special care are recorded.  
 Section 5: Laboratory tests and requests for x ray films and results.  
 Section 6: Injections (other than immunisations) and dressings, prescribed and given. Immunisations, set out according to schedule followed locally. Health education given or demonstrations which the mother has attended.  
 Section 1: Personal details: name, ethnic group, date of birth, places of birth and residence, numbers of living and dead siblings. Clinic attended (hospital, village maternity centre, mobile unit, stopping point, etc). Appointments: when, with whom, weight on attendance.  
 Continuation sheets reproduce and cover sections 3 and 4.

On the question of patients losing their cards, our experience is that they are much less likely to do so than most hospital records departments. As for confidentiality, the times when information must be withheld are few, and, on a realistic note, many patients in the Third World are unable to read.

Thus the only patients for whom separate records need to be kept at the hospital are, in my view, inpatients and those patients who suffer from conditions that need to be brought to the attention of the public health authorities, or whose legal importance requires information to be available in the patient's absence. Examples of these include tuberculosis (because of the need to trace contacts and those who default from treatment); accidents, when prosecution or insurance claims may have to be dealt with; and occupational injury or illness.

The outpatient record cards we devised are shown in figures 1 and 2. They are printed (infants in green, adults in blue) on A4 white card, which is folded in three to make six sections. The card is given to the mother or the patient in a stout protective plastic envelope. When the space available is filled a continuation sheet (duplicated

on white paper) is stapled on to form a new notes and prescriptions section. An indefinite number of these sheets may be added, but space must be used economically to avoid ending up with unwieldy bulky records. For routine observations rubber stamps may be used to ensure both completeness and conciseness. The fees (or "frais") section on the adult version, and its absence from the under 5s version, reflects the fact that in the Dabou programme most services for the under 5s are free. Adults pay what they can towards consultations and examinations, and children over 5 pay half price. The weight chart on the under 5s record gives the rough 3rd and 50th centiles (so that mothers can see their child's progress). A good review of the variety of charts used world wide is given by Tremlett *et al*<sup>2</sup> and is available as a booklet from Teaching Aids at Low Cost.

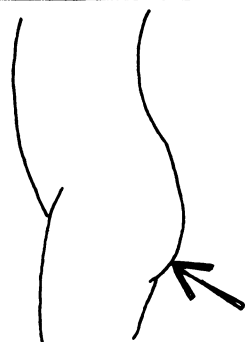
Patients are told that their record cards are their passport to all the hospital's services and that they need to be shown to every doctor, nurse, or pharmacist consulted. A photograph may be stapled to the adult card to help match cards to patients when these get separated during registration, recording of laboratory examinations, or the dispensing of drugs. It is a good idea to try to get the patient's



Methodist Hospital  
P.O.Box 115, DABOU  
 2 tablets each morning  
 00  
 BENDROFLUAZIDE 5mg

**A morning diuretic**

Methodist Hospital  
P.O.Box 115, DABOU



Insert one in anus  
 morning and night  
 / /

BISMUTH SUBGALLATE  
 SUPPOSITORIES

**A twice daily suppository**

Methodist Hospital  
P.O.Box 115, DABOU  
 1/2 tablet on 1st morning  
 1 tablet on 2nd morning  
 2 tablets on 3rd morning  
 2 tablets twice on 4th day  
 2 tablets 3 times on 5th day  
 2 tablets 4 times a day thereafter  
 until packet is finished.

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DIETHYLCARBAMAZINE 50mg

**A progressive course of diethylcarbamazine**

FIG 4—Medicine labels for (a) a morning diuretic; (b) a twice daily suppository, and (c) a progressive course of diethylcarbamazine.

FIG 2 (see facing page)—Outpatient record for adults and children over 5. Front is sections 2, 3, and 4; back sections 5, 6, and 1).

Sections 2 and 3: Clinical notes at each visit. Medicines prescribed and dispensed. Principal diagnoses are written at top of section 3.  
 Section 4: Laboratory tests and requests for x ray films and reports.  
 Section 5: Fees charged and paid.  
 Section 6: Injections and dressings prescribed and given.  
 Section 1: Personal details including blood group and any other information vital in an emergency; appointments: when, with whom, weight on attendance.  
 A4 continuation sheets reproduce and cover sections 2, 3, and 4.

FIG 3 (see facing page)—Inpatient record.

Page 1 (personal details and hospital number). It includes three discharge sections (allowing for three admissions) and boxes for diagnoses, operations, clinical summary, discharge medication, follow up appointments, and payments.  
 Page 2 (not illustrated): For use after patient has been discharged. For follow up notes, or for stapling on essential observation charts or details of procedures not included on pages 4 and 5.  
 Page 3 (not illustrated): Clinical notes on admission, and any operation notes (recorded in red).  
 Pages 4 and 5: Section 1: date, day of hospital stay. Section 2: temperature and blood pressure (different scales on same graph). Section 3: pulse and respiratory rates, time of observation, bowel movements. Section 4: laboratory and x ray examinations. Section 5: four columns for flexible use—for example, regular testing of urine and daily weight. Section 6: prescriptions; each is started on a new line in the first free column, allowing for seven concurrent prescriptions; the nurse writes the time in the appropriate column each time a medicine is given; a prescription is cancelled by hatching a full line under it. Section 7: instructions concerning regimen, diet, intravenous fluids, etc. Section 8: diagnosis, progress notes.  
 Page 6: copy of page 4.

The continuation sheet thus has page 4 on one side and page 5 on the other; adding successive ones reproduces the page 4-5 spread as many times as the length of stay requires; the resulting book is easy to scan and simple to file.

registration, consultation, tests, prescribing, and dispensing all filled in on the record card within one day. This avoids having to file the record and then retrieve it to record additional information. It also minimises the inconvenience to the patient, who may have had to travel a long distance to reach the hospital.

**INPATIENT RECORDS**

A single document (as is the case for outpatient records) has advantages for inpatient records, for both ease of recording and reading during the patient's stay. It also makes filing and transport simpler once the patient has been discharged home. If the record is to be filed in the hospital it needs to be numbered. The model described below and shown in figure 3 was inspired by that used in Wesley Guild Hospital, Ilesha, Nigeria, and is based on Willis's columnised medical charting.<sup>1</sup> The time axis is vertical, which makes instructions and observations, related to time, easy to follow.

Figure 3 shows that there are six pages; the first four are printed on a single folded A3 card, and the remaining two on a sheet of A4 paper pasted by its margin. The hospital number is based on the date of birth and is compiled from the last two digits of the year of birth and a letter denoting the month of birth (A = January, B = February . . .) for children; for patients first registered as adults this is replaced by Q as the month is unimportant. This is then followed by a three digit serial number. Thus the 37th child to be registered among those born in May 1981 would have the number 81 E 037. Ring binders containing a sheet for each month of birth with the numbers 000-999 on each sheet enable the records clerk to allocate the serial number.

### Advice and instructions to patients

The most important communication with any patient is obviously verbal, and it is important to ensure that advice, and instructions on how to take medications, are given to the patients in their own language. Written instructions are also useful as a reminder to the patients when they return home. For patients who do not read the national language try writing instructions in the dialect (although they may not read that either). We found that the most effective way to get a message across was to combine spoken instructions in dialect with written symbols, whose meaning was first explained to the patients in their own dialect. We experimented, as others have,<sup>3</sup> with labels or notes using a variety of symbols—for example, crowing cocks and setting suns—but in the end found that a simpler system (fig 4) was just as good. This system used the position on the page to indicate the time of day, O to indicate a tablet, D or / for half a tablet, and / to indicate a unit of a given treatment. The route of administration (if not oral) was indicated by an accompanying anatomical illustration. This system proved to be cheap because most labels could be typed on a duplicator stencil.

Colour codes are of limited value because they are expensive to print and some languages recognise only red, white, and black. In figure 4 labels for a morning diuretic, a twice daily suppository, and a course of diethylcarbamazine are shown. The last indicates the increasing dose to be taken on successive days, and shows that even complex schedules may be expressed simply. We found that compliance with these instructions was usually good, provided that the meaning of the symbols was carefully explained to the patient. It is unwise to rely on verbal instructions alone, for these are unlikely to be successful, particularly if several medicines are dispensed.

Labels, such as the ones shown, may be slipped inside transparent sachets. These may be made from rolls of plastic, using a pedal operated heat sealing machine, and allow tablets and even ointments to be dispensed far more cheaply than if commercial packages are used. The sachets or containers should contain exactly the right number of tablets required and provided the instructions are understood, the course is likely to be followed correctly.

A broader study of ways in which suitable containers may be

made is planned by the Appropriate Health Resources and Technologies Action Group (AHRTAG).

Standard treatment schedules should be worked out in great detail and copies made available to staff together with step by step aids to diagnosis and management. A book of such schedules, including comparative costs, administrative procedures, and useful contacts, is a godsend to harassed workers called on to treat patients with unfamiliar diseases and to physicians receiving paediatric or surgical emergencies in the middle of the night. The standardisation of drug regimens also speeds dispensing and allows annual drug needs to be estimated.

An illustrative approach is a good way to show how to make up and administer oral rehydration fluid. Similarly, dates for immunisations may be suggested by syringes or dropper bottles on the chart and may be filled in by the mother. Various simple health education messages may be transmitted this way but they need thorough testing to avoid misunderstanding. One example of such misunderstanding occurred when one of the villagers remarked how fortunate they were not to be plagued by the giant mosquitoes that they saw depicted on a poster which was supposed to be conveying information about controlling the insect vectors of malaria.

I am grateful to Dr G J Draper and my Dabou colleagues who developed various stages of the records described; to Dr C A Pearson and Professor D C Morley, who set us on the right road; and to my wife, who, as well as being a colleague, typed the drafts and manuscript of this article.

#### USEFUL ADDRESSES

Teaching Aids at Low Cost (TALC), PO Box 49, St Albans, Herts AL1 4AX.  
Appropriate Health Resources and Technologies Action Group Ltd (AHRTAG), 85 Marylebone High Street, London W1M 3DE.  
Samples of Dabou record cards (with full details and an English translation) may be obtained from Dr P H Snell, Hope House, Saltergate Lane, Bamford, Sheffield S30 2BE. (Cost £1.)

#### References

- Morley D. Medical records. In: King M, ed. *Medical care in developing countries*. Nairobi: Oxford University Press, 1966;26:1-12.
- Tremlett G, Lovel H, Morley D. Guidelines for the design of national weight for age growth charts. *Assignment Children* 1983;61:143-75.
- Ngarama BN, MacDougall JJ. To improve a patient's understanding of prescriptions. *Trop Doc* 1975;5:135-7.

*Our photocopier produces unpleasant fumes, presumably from the chemicals used. Is anything known about the nature of such fumes? Is there any health hazard and should any safety precautions be taken?*

Modern photocopying machines need three types of chemical—developer, toner, and fuser oils. Of these, only the toner is routinely handled by office staff; developer and fuser oils are not consumed by the photocopying process and fall into the province of the service engineer. Toner is responsible for imparting intensity to the copied document. The pigment is highly purified carbon black, coated with fully reacted resin. It may be supplied as a powder or as a liquid concentrate that is mixed with a diluent within the machine. In the latter case solvent vapour may be liberated, particularly if spillage occurs. Toner is of interest because recent research showed that nitropyrenes, which occur as impurities in the manufacture of carbon black, could induce mutations in cultures of salmonella bacteria (the Ames test). As a result the manufacturers reduced these impurities to concentrations at which the Ames test result became negative. Nevertheless, the importance of these findings is uncertain. An excess incidence of cancers in process workers has not been shown. The diameter of carbon black particles (13 µm) puts them well above the respirable range so that deposition in the lower respiratory tract is unlikely. Furthermore, nitropyrenes are so tightly bound to these particles that liberation in vivo is considered improbable.

Complaints arising out of the use of photocopiers are not uncommon. Symptoms of headache, facial rash, and eye or upper respiratory tract irritation may be explained on the basis of exposure to low concentrations of ozone or toner solvent. Usually the problem is physical rather than chemical. Photocopiers generate heat and static electricity, which may produce a dry and dusty ambient environment. This is aggravated by a tendency to site reprographic equipment in small, airless rooms or in partitioned off corners of offices; thus are the best laid plans of ventilation engineers thwarted. People who work in such an atmosphere may experience irritation and discomfort, but, regardless of their aetiology, such symptoms generally

disappear when adequate and correctly positioned ventilation is provided.—  
W R LEE, professor of occupational health, Manchester.

*What technique is advised for collecting and storing specimens for lipoprotein analysis?*

Lipoprotein analysis by electrophoresis or ultracentrifugation is a costly investigation and it should be performed only when there is clinical suspicion of considerable abnormality. Surgery and major illnesses such as myocardial infarction induce changes in lipoprotein patterns that last for weeks; testing should not be carried out within three months after such an event. Naturally, drugs which are used to treat hyperlipidaemias also induce changes. These should be stopped for at least three weeks to allow the patient's normal pattern to return. He should be in steady state for at least two weeks before testing—no illness or injury, no change in medication, stable weight, normal diet—and he should fast (water only) for 12 to 14 hours. Posture and venous stasis may affect results—the patient should ideally be seated for 30 minutes before venepuncture, and it should be performed without stasis. Each laboratory has its own preference for specimen type, but plasma anticoagulated with citric acid and serum are both generally acceptable. The plasma or serum should be separated from the cells within about four hours and should ideally be stored at 4°C for analysis within one week. Freezing should be avoided because it partially denatures the lipoproteins, but if prolonged storage is necessary it may be better to freeze the samples and store them at -20°C. It is especially important to avoid thawing and refreezing, which compounds the denaturation. If prolonged storage at room temperature—for example, for transmission of the specimen by post—is necessary then sodium azide 5 mg/ml may be added as an antimicrobial preservative.—D R BOSWELL, senior lecturer in chemical pathology, Southampton.

Lewis B. *The hyperlipidaemias*. Oxford: Blackwell Scientific Publications, 1976.