Standards in medical record keeping

Robin Mann and John Williams

Abstract – Medical records serve many functions but their primary purpose is to support patient care. The RCP Health Informatics Unit (HIU) has found variability in the quality of records and discharge summaries in England and Wales. There is currently a major drive to computerise medical records across the NHS, but without improvement in the quality of paper records the full benefits of computerisation are unlikely to be realised.

The onus for improving records lies with individual health professionals. Structuring the record can bring direct benefits to patients by improving patient outcomes and doctors' performance.

The HIU has reviewed the literature and is developing evidence-based standards for record keeping including the structure of the record. The first draft of these standards has been released for consultation purposes. This article is the first of a series that will describe the standards, and the evidence behind them.

KEY WORDS: medical records, standards

Medical records serve many functions in the modern healthcare environment. These can be broadly divided into *primary* and *secondary* functions (Table 1). In this article, deficiencies in current record-keeping practice that interfere with these functions are highlighted. The case is argued for establishing evidence-based standards for record keeping.

How it was

Records have been kept in a variety of ways since the inception of modern medicine. In the 1880s, physi-cians at the Mayo Clinic in Minnesota kept all their patients' records in a personal leather-bound ledger. This was replaced in 1907 with patient-based records, and this method of record-keeping is still used today by some domiciliary health visitors.

The first major attempt to standardise medical records in the UK came in 1965 with the publication of the Tunbridge report.[1] This produced some of the standard hospital medical records forms we use today (Box 1).

In his report, Tunbridge also described the problems of extracting information from records for secondary purposes. He proposed that medical records should be standardised and 'mechanised', so that the new methods of sorting and storing information could be used to full advantage.[1]

In 1968, Weed described the problem-orientated medical record (POMR). He proposed that the clinical record should be structured around the patient's problems, rather than medical problems, and be updated in detail on a daily basis.[2] Later evaluation of the Weed POMR, with each problem described in the progress notes by the subheadings 'subjective', 'objective', 'assessment' and 'plan' (SOAP), cast doubt on the predicted improvements in clinical processes,[3] but Weed had acknowledged that his proposals would be impractical using paper records and suggested that the full POMR would only be possible with computerisation.[2]

How it is

Despite these calls for standardisation over 30 years ago, problems remain with record-keeping systems and medical records in the UK.

In 1995, the Audit Commission examined 200 case notes from eight hospitals and found many different structures to the records, and some with no structure

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Table 1. Primary and secondary functions of medical records.

Primary functions	Supporting direct patient care • Aide memoir • Communication
Secondary functions	Medico-legal record Source of information for: • Clinical audit and research • Resource allocation • Epidemiology • Service planning • Performance monitoring

Key Points

The primary purpose of the medical record is to support patient care

The current standard of clinical records is variable

Patients benefit from structuring clinical information within the record

The RCP Health Informatics Unit is developing evidence based standards for record keeping

Box 1. Examples of standardised hospital medical record (HMR) forms.

HMR 1	Identification sheet/summary
HMR 1 (IP)	Identification sheet (case note copy)
HMR 250 KX	Admission form
HMR 4(a) L	History sheet – one
HMR 4 b	Continuation sheet
HMR 100	Standard mount sheet (gummed)
HMR 111	Inpatient medication
HMR 6	Anaesthetic record
HMR 302	Nursing preoperative checklist
HMR 200	TPR and BP sheet
HMR 5A1	Operation consent by patient
HMR 210D	Diabetes chart
HMR 210A	Daily intake – output chart
HMR 2D	Discharge summary

TPR = temperature, pulse and respiration; BP = blood pressure.

at all. More than half had no index of contents; half were fat and disorganised; they were focused on episodes (outpatient, day-case or inpatient) rather than the continuum of the patient's care; and they were diagnosis- or procedure-led rather than problem orientated. The records were not integrated, with medical, nursing and other components kept separate.[4] The Commission repeated the audit in 1999, found improvement in some areas but inconsistency still remained.[5]

The Kennedy report from the Bristol Inquiry also criticised current record-keeping practices and standards.[6]

In 2002, the RCP Health Informatics Unit (HIU) audited 149 case notes in five hospitals in England and Wales as part of the evaluation of a training package for junior doctors. We looked at the completeness of the notes for completed admissions, various features of individual entries, and markers for quality of printed

Fig 1. Average delay in producing printed discharge summary (reproduced from the Health Informatics Unit medical records audit).

discharge summaries. We found that 35% of the case notes were without a problem list; 29% and 22% had pages without patient identification and name respectively; 9% of all entries were not entirely legible; 10% were unsigned and 11% undated; 83% of all entries did not identify the lead clinician present (presumed to be the decision maker).

Of 87 printed discharge summaries in the notes, 17% had no diagnosis, 19% had no procedure, 21% had no follow-up arrangements, and 75% gave the GP no information on what the patient had been told. Two hospitals had 16% and 24% of printed summaries without dates.

The delay in producing the printed summary was variable. For dated summaries, the longest average delay was 26 days, and the shortest was zero. The site that produced a printed discharge summary on the day of discharge had an electronic system (Fig 1).

We also examined inter-auditor variability and found that there were considerable differences in opinion between senior and junior doctors and nursing and audit staff as to what constituted a 'problem list', and even larger discrepancies in counting numbers of procedures in some sites.

The problem

There is currently a major drive to develop electronic records systems across the UK.[7–9] The NHS Information Authority has been in place for five years to implement the strategy in England. One of the objectives is to replace existing paper records with electronic records by 2008.

However, computerising medical records in their current state will create more problems than it solves: a mess computerised is a computerised mess.

Part of the solution is to develop evidence-based standards for record-keeping, including standards for structuring the clinical record.

Structuring the record

In *Setting the record straight*, the Audit Commission recommended that there should be one folder per patient, an agreed structure to the record, and standards for content.[4] These recommendations are supported by evidence which indicates that structure can improve patient outcomes and doctors' performance (Tables 2 and 3).

Wyatt argued that structured records are easier and quicker to search and therefore can improve decision-making, but they have the disadvantage of being more difficult to write.[28] However, some have found no significant difference in the time taken to complete structured proformas and free-text history sheets.[20,29] Furthermore, Wright described how structuring information could enhance interpretation and therefore limit clinical errors, improving patient outcomes and reducing the costs of healthcare.[30]

There is also evidence that structured discharge summaries are preferred by GPs;[31–36] they improve continuity of care;[33] and they make it easier to extract information for 'secondary
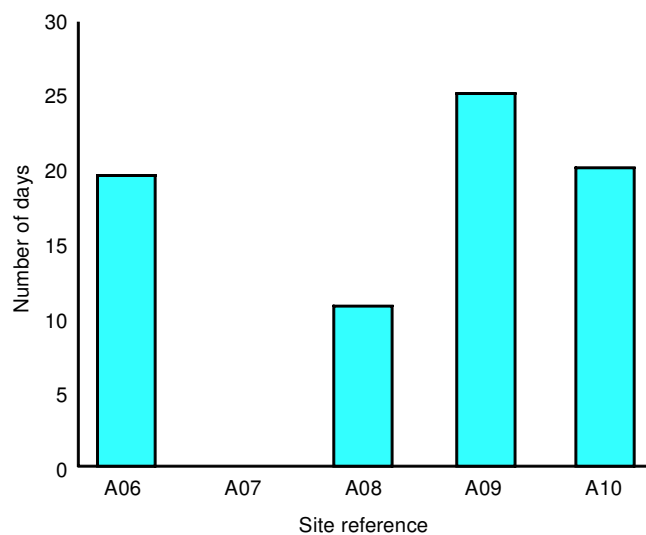
Table 2. Studies assessing how improved structure of medical records affects patient outcomes.

Authors	Outcome measured	Results	Comments
Rogers and Haring 1979[10]	Number of days readmitted	Decreased	Possibly confounded
Humphreys et al. 1992[11]	Number of problems at follow-up	No change	RCT
Humphreys et al. 1992[11]	Patient satisfaction with treatment	Increased	RCT
Zenni and Robinson 1996[12]	Patient satisfaction with treatment	Increased	Small sample size

RCT = randomised controlled trial

Table 3. Studies assessing how improved structure of medical records affects doctors' performance.

Authors	Outcome measured	Results	Comments
Adams et al 1986[13]	Junior doctor correct diagnosis	Improved	
Duggan et al 1990[14]	Recorded and observed performance	Improved	Not randomised
Lilford et al 1992[15]	Doctors' response to risk factors	Improved	
Humphreys et al 1992[11]	Completeness of documentation	Increased	RCT
Wallace et al 1994[16]	Completeness of documentation	Increased	Before and after study
Goodyear and Lloyd 1995[17]	Completeness of documentation	Increased	Retrospective, no control
Teo et al 1995[18]	Completeness of documentation	Increased	Before and after study
Robinson et al 1996[19]	Completeness of documentation	Increased	Before and after study
Zenni and Robinson 1996[12]	Doctors conformance to guidelines	Increased	Small sample size
Belmin et al 1998[20]	Completeness of documentation	Increased	Before and after study
Belmin et al 1998[20]	Accuracy of recorded information	Increased	Before and after study
Johns et al. 1992[21]	Documentation of counselling	Improved	
Shank et al. 1989[22]	Screening recommendations	Improved	Before and after study
Cohen et al. 1982[23]	Screening procedures	Improved	RCT
Irtiza-Ali et al. 2001[24]	Documentation of admission history	Improved	Audit reported in letter
Cheney et al. 1987[25]	Screening procedures	Improved	RCT
Wrenn et al. 1993[26]	Completeness of documentation	Improved	High risk of selection bias
Town et al. 1990[27]	Completeness of documentation	Improved	Before and after study

purposes', such as audit and performance monitoring.[37,38] These benefits are summarised in Box 2.

Evidence-based standards for record keeping

In order to address these problems, the HIU is developing evidence-based standards for inpatients' record keeping. The initial draft standards have been published for consultation purposes at www.rcplondon.ac.uk/college/hiu/recordstandards.

The draft standards address the admission clerking, the discharge or transfer summary, and the entries made between admission and discharge. They also address special entries for patient information, consent forms and death. Formal piloting and evaluation *in situ* is planned.

We acknowledge that introducing any innovation into clinical practice requires organisational change as well as changes in ways of working for clinicians. It has been found that providing education and support for staff can ease the introduction of structured proformas in the hospital setting.[34] This should start at induction,[17,20,33] and be maintained by reinforcement and monitoring.

The draft standards are supported by a comprehensive portfolio of educational exercises, *Laying the foundations for good medical practice – a generic training programme for senior house officers*,[39] which also contains an audit tool. Junior doctors are encouraged to audit records regularly against the standards.

Conclusions

In this article we have highlighted problems in medical record keeping and shown that structuring the record may improve patient outcomes and doctors' performance. The next article will explore what is meant by 'structure' and describe the evidence for how the record should be structured.

If you are interested in participating in the piloting process, please contact Dr Robin Mann at the Health Informatics Unit.

Acknowledgements

Box 2. Benefits of adopting evidence-based standards for record keeping.

Improved quality of records:
- Improved completeness of information
- Improved accuracy of information

Better patient information:
- Improved communication
- Informed patients
- Greater patient involvement in decision-making

Improved patient outcomes

Improved data validity for secondary purposes:
- Improved central returns
- Accurate performance data
- Better research data
- Better NHS management information

More efficient health services

Improved public health