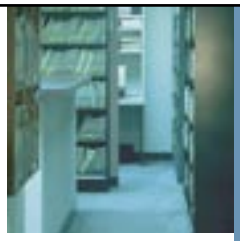

Computerisation of records

Using nonmedical staff for past history summarisation

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An important component of a good medical record is a succinct history of key medical events for the patient. Unfortunately, accurately extracting and selecting such information from existing paper medical records in order to produce high quality records in electronic form is a difficult task for general practitioners to accommodate within the day-to-day demands of busy general practice. This article describes how a large Australian practice trained and used nonmedical staff to produce past medical history summaries of sufficient quality for the practice to be comfortable with computer record 'paperless' consulting.

Hawkins Clinic is a large rural practice in Mount Gambier, South Australia. In considering a move from a frustrating hybrid paper and computerised patient record system to a paperless one, it was felt that a good medical summary in the electronic record was essential. More pressing immediate clinical demands on doctors in our practice, and varying commitment by them to the task, repeatedly frustrated a systematic approach to building such summaries until the decision was made to use our nonmedical staff to extract key data from the paper records and enter it in the computer records of our regular patients.

Coding of medical activity including diagnoses and procedures is commonly performed by formally trained nonmedical staff in the monitoring activity of national health systems all over the world,[1,2] but the process described here takes place at practice level with local staff whose training and mode of operation is defined by the practice to meet its own particular needs. Similar activity has been described in the United Kingdom literature,[3,4] but there is little description of this approach in Australian general practice literature. There are also some aspects of the process that are particular to the Australian context.[5]

Choice of staff

We advertised in the practice for four positions (two nurses and two clerical employees) for the summary project team (SPT). Although an attempt was made to develop an aptitude test to aid selection, in retrospect it was clear that the same types of attributes that were valued in their existing posts were those of most benefit in the summarisation task (familiarity with medical terminology, common sense, pragmatism, and the ability to take responsibility but to seek help when appropriate). An advantage of using existing staff was that the clinical details of patients were necessarily encountered in their existing day-to-day employment, therefore there were no issues with respect to privacy and security of records.

Initially we used pairings of nurse and clerical employee, with the nurse handling more complicated summaries. However, after the first few weeks of orientation it was clear that the clerical employee skill was sufficient to produce high quality summaries independently.

SPT training, feedback and support

The lead partner and practice manager drafted SPT guidelines which were distributed to SPT members before commencement of the project (*Table 1*). The partnership delegated to a committee of three doctors, key decisions within these guidelines about what should be included in a summary and how the clinical software should be used. The importance of using the Medical Director Docle coding wherever possible (and particularly for common chronic diseases) was also emphasised – use of free text in these circumstances greatly diminishes the future power of the electronic clinical database to be reliably searched for practice patients with the same clinical

Table 1. SPT guidelines

- Selection of notes for summarising
- Sources of summary items
  - existing summary
  - summary within correspondence
  - correspondence itself
  - regular medication
  - ? continuation notes
- What should be included/omitted
  - Joint Committee on Postgraduate Training for General Practice (JCTGP) guidelines helpful

condition (so major future health benefits of the practice population through clinical audit or patient recall is lost).

For a number of weeks before the commencement of the project, doctors highlighted new summary items on incoming correspondence. These letters were handed to SPT members to enter into the computer. This gave them familiarisation with the use of the clinical software without the pressure of choosing summary items from existing full paper records. It also insured that the practice had an efficient system with minimal doctor time for keeping the summaries up-to-date subsequently.

The first training session was a mixture of motivation, discussion of the guideline documents, and practical preparation.

Early review meetings allowed SPT members to discuss any difficulties with the practice manager and lead partner. Modifications to the guidelines and general approaches followed, as well as more specific discussions on how particular common clinical entities would most consistently be entered into the electronic records. Particularly helpful was the capacity for SPT members encountering difficulties with coding decisions or omission/inclusion decisions to email a group of doctors in the clinic for advice, and thus obtain prompt consensus help with minimal disruption to consulting.

Especially in the first few weeks, helpful feedback for the SPT (and reassurance for the principal doctor organising the project) was obtained from a random selection of one in 10 records summarised which was checked for completeness and appropriateness of the summary. A log was also kept of items not easily fitting the Medical Director Docle classification, and this provided information about where help was needed for SPT members.

Of major practical importance was the reduction of the need for repeated identical keystrokes with the use of a keystroke macro program ('Keytext') combined with the response speed of Medical Director when run as a terminal service instead of the more traditional terminal-server arrangement.

Choice of records for summarisation

Unlike UK general practice, where patients can only be registered with one general practice at a given time, Australian practices generally hold many more sets of records than they have active patients. A pragmatic selection of which records to summarise was needed to focus the summarisation resources on current patients rather than those patients unlikely to attend the practice again.

The decision taken for Hawkins Clinic was to start at one end of our sequential record number system and restrict the summarisation to those records in which patients had a note entry from January 2003 onward, the summarisation project starting in August 2003 and running for 6 months. Records of patients outside this cohort were summarised opportunistically as they presented. Office protocols ensured that the summarisation status of records was carefully recorded in both the paper and electronic records.

Finding and selecting summary items from existing records

Our experience was that maximum yield of summary items arose from the first four sources listed in *Table 1*. Existing written summaries were very useful, as were certain items of correspondence which essentially held summaries within them (eg. referral replies from general physicians, copies of insurance reports).

As an aid to deriving summary items from regular medication, one set of guidelines was a back translation of 'MIMS'. A table of medications (including generic and all proprietary brands) was produced with an adjacent tabulation of the relevant important diseases. For example salbutamol (or Asmol or Ventolin) would be tabulated with likely diseases of asthma or chronic obstructive pulmonary disease (which would then be confirmed from perusal of the paper record) whereas nonspecific medications such as simple pain killers or nondisease related drugs such as oral contraceptives were omitted. As the project progressed however, the SPT became more adept at spotting relevant medication implications without needing to refer to the table.

Detailed perusal of written continuation notes was both difficult in terms of understanding hand written doctor records, and poor yield compared to other processes. Accordingly, we did not require our summarisers to do this other than to confirm or clarify the back translation process from regular medication.

Table 2. Criteria recommended by the Standards of Medical Records Working Party of the JCTGP for a summary problem list[7]

- Conditions relevant to assessment of a patient's problem
  - conditions liable to remission or recurrence, eg. peptic ulcer, multiple sclerosis
  - conditions liable to complications, eg. malignancy, alcoholism
  - major operations
  - important conditions which the patient may be reluctant to make known, eg. sexually transmitted infection, attempted suicide, termination of pregnancy
- Conditions requiring continuing medical care
  - conditions requiring long term management, eg. hypertension, pernicious anaemia
  - conditions requiring long term follow up, eg. renal insufficiency, thyrotoxicosis treated with radioactive iodine
- Conditions affecting choice of drug, eg. allergies and sensitivities, peptic ulcer, eczema
- Conditions affecting patient function, eg. blindness, phobic anxiety state
- Social problems
  - abnormal family structure, eg. one partner family, orphan
  - family violence, eg. battered baby/wife
  - long standing disturbed, eg. chronic marital disharmony, incest
  - sociopathic behaviour, eg. chronic truancy, prison record, compulsive gambling
  - severe social handicap, eg. illiteracy, chronic unemployment

A pragmatic balance was also needed in terms of what types of items should be included and what should be omitted (the description of an appropriate summary list in *Table 2* from UK general practice proved a useful resource, although Australian guidelines were also consulted[6]). Overly fastidious policy here is extremely time wasting (and expensive in consequence) for no great clinical benefit, so summarisers needed written guidelines on what to include and what to exclude. For example, we made decisions not to record normal obstetric history, minor greenstick type fractures or similar trauma, and not to record tonsillectomy and variants in early childhood when summarising adults. We also chose not to record some events leading to definitive treatments (eg. menorrhagia is of doubtful significance once a hysterectomy has been performed or after menopause in subsequent medical decision making) and allowed some multiple similar events to be summarised in one line (eg. multiple basal cell carcinoma or squamus cell carcinoma operations), although for other items we required text addition to more fully document the item (eg. the type of disease process underlying a prostatectomy). Note that for a significant number of patients (particularly children) an entry of 'no significant past medical history' is appropriate.

Safeguards

Apart from the feedback processes for the SPT described above, the main safeguard for the project occurred when a patient whose notes had been summarised next presented at the clinic. The summary could be checked by the doctor directly with the patient and with the written record. For longer summaries, this could be done with the aid of preprinted summaries that some doctors at Hawkins Clinic found helpful to hand to patients to peruse at their leisure and return to the clinic with key amendments if necessary.

Costs/benefits

Hawkins Clinic used 760 hours of nurse time and 700 hours of clerical time to summarise just over 11 000 notes in 6 months at a total staff cost of $30 300 (just under $3.00 per record), but expenditure of doctor time outside normal consultations was minimal.

However, once most processing of patient records is electronic, significant savings in clerical time can be made (we were able to reduce office hours by 10 hours per week soon after completion of the project). In addition, by using a recall marker in the electronic notes for summarisation status and selecting the records as described, it is easy to identify by computer current patients and their health needs (eg. immunisations, Pap tests and routine chronic disease checks). Patients can then be appropriately invited to make appointments for their own health benefit (while also increasing practice income).

Finally, the skills developed by the SPT remain a useful practice asset. The notes of new patients to the practice can be summarised with minimal use of doctor time and existing summaries can be updated by the SPT as new items emerge from appropriately marked incoming correspondence.

Conclusion

The purpose of this article is to highlight the possibilities for other Australian practices of using nonmedical staff for producing good medical summaries in electronic format from data in paper records. This is a key step in enabling many doctors to be comfortable with the concept of consulting with no written record.

These skills could be easily transferable to nonmedical staff in (or recruited to) other practices, and there are significant benefits in population health in enabling health information to be accessed and pooled electronically (eg. identifying practice patients with particular diseases and clinically auditing their care). There is a significant capital investment required in such a process, but long term savings in staff expenditure and other financial compensation can be achieved as a result.

Conflict of interest: none declared.

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