Computer-generated correspondence for patients attending an open-access chest pain clinic

ABSTRACT - **Aim:** To determine whether general practitioners (GPs) prefer structured computer-generated or standard dictated outpatient clinic letters.

**Design:** Questionnaire survey of all GPs referring patients to an open-access chest pain clinic at a district general hospital in London. The GPs were asked to compare three twinned examples of structured computer-generated and unstructured dictated letters.

**Results:** Of 93 respondents (response rate 77.5%), 75 (80.6%) preferred the computer-generated letter and 16 (17.2%) preferred the dictated letter (p<0.0005). The preferred features of the computer-generated letter were its clear presentation, subheadings, and concise information. The computer-generated letter scored significantly higher than the dictated letter: for clarity, mean 8.2 vs 6.5 (p<0.0005); content, mean 8.5 vs 6.9 (p<0.0005); and readability, mean 8.2 vs 6.8 (p<0.0005). The GPs in the survey considered a mean delay of 3.4 days to be acceptable for receiving the letter from the chest pain clinic.

**Conclusion:** GPs prefer structured computer-generated letters to unstructured dictated letters for patients referred to an open-access chest pain clinic. Computer-generated correspondence allows rapid feedback of information to the referring GP, one of the key requirements of open-access clinics.

Open-access referral to hospital services is a relatively recent innovation that is becoming increasingly available and is welcomed by general practitioners (GPs). In clinical practice, for example, open-access to exercise testing, ambulatory electrocardiogram monitoring, echocardiography, and outpatient assessment of chest pain has been described. Rapid patient referral for specialist opinion is a key requirement of these clinics, and they must give the referring GP an equally rapid response about diagnosis and treatment. In our open-access chest pain clinic, referral letters are faxed to a dedicated number within the cardiology department and patients are seen either the same day or within 24 hours. The fax is accessible only to medical staff to maintain patient confidentiality. Demographic and clinical details are entered into a purpose-built computerised database. This utilises a relatively limited number of information fields into which data are entered by choosing the appropriate response from a drop-down menu of pre-selected choices. The completion of all fields ensures uniform data entry. A field transformation facility allows this information to be presented in a computer-generated letter format. It is semi-structured, with details of diagnosis, cardiac history, risk factors, examination, investigation results (electrocardiogram, stress test, chest radiograph), treatment and follow-up arrangements. This clinic letter is then faxed after the consultation and the GP can expect to receive it on the same day as making the referral. The preference among GPs for structured correspondence has been previously reported, but their preference for this type of computer-generated clinic letter over standard dictated letters remains to be determined.

**Methods**

We sent a five-point questionnaire, together with three twinned examples of computer-generated and dictated open-access chest pain clinic letters, to 120 GPs identified from the most recent secretarial list as the total number of GPs referring patients to our hospital. The senior house officer attending the clinic, who was unaware of the purpose of the study, dictated letters for three patients and these were compared with computer-generated letters for the same patients. Personal details were altered to preserve anonymity. The dictated letters were not formally structured, but highlighted diagnosis and medication, followed by standard free text detailing all other information considered relevant, including cardiac and past medical history, examination, investigations and management. Differences in proportions were compared using chi-square analysis and, in mean scores, using Wilcoxon signed ranks test.

**Results**

Ninety-three questionnaires were returned (response rate 77.5%). Responses were as follows:

1. **Which chest pain clinic letter do you prefer?** Seventy-five respondents (80.6%) preferred the computer-generated letter and 16 (17.2%) preferred the dictated letter (p<0.0005). Two GPs (2.2%) expressed no preference.

2. **What do you like most about each format?** Preferred features of the computer-generated letter identified by 9 or more (>10%) respondents were: ease of access to...
information under subheadings (27), more information (21), clear presentation (21), and concise content (14). Preferred features of the dictated letter were: more personal (12), and diagnosis and medications clearly highlighted (9).

3 What do you like least about each format? No negative features of the computer-generated letter were consistently identified by 9 or more (>10%) respondents. However, the most frequent criticisms were: rigid format (7), impersonal (6) and too much negative information for patients without history of heart disease or risk factors (6). Criticised features of the dictated letter were: too long to read (9) and need to 'extract' information from the text (9).

4 Please score each format 1–10 (1=worst, 10=best) for clarity, content and readability. The computer-generated letter scored significantly higher in each case (Table 1).

5 What is an acceptable delay to receive the chest pain clinic letter? Eighty-nine GPs (95.7%) who replied to this question, considered a mean delay of 3.4 days (2.2 SD; range 0–10 days) acceptable.

Discussion

The majority of our local GPs preferred the structured computer-generated letter to the free text dictated letter for the reasons stated above. That the structured letter was generated by computer has important implications; an open-access clinic in any field demands rapid transfer of information from specialist to primary care physician. Our survey indicates that most GPs want to receive a clinic letter within three to four days, a target that is rarely met in practice due to the inherent delays in typing and mailing dictated correspondence. However, we can consistently meet their target by faxing the computer-generated letter to the general practice office immediately after the consultation. Not only does computer-generated correspondence shorten feedback time, but the data can readily be analysed for the purposes of audit and research.

General practitioners’ preference for structured rather than unstructured clinic correspondence has previously been reported, as has their preference for structured discharge summaries generated by computer for patients with acute coronary syndromes and for surgical patients. This study shows that clear presentation of comprehensive information under subheadings is an important contributing factor to this preference. Computer-generated correspondence meets the requirement for rapid feedback of information and, in the opinion of our GPs, need not affect the quality of the information.

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Table 1. Scores for clarity, content and readability.

|                      | Computer-generated mean (SD) | Dictated mean (SD) | p value |
|----------------------|------------------------------|--------------------|--------|
| Clarity              | 8.2 (1.5)                    | 6.5 (1.9)          | <0.0005|
| Content              | 8.5 (1.2)                    | 6.9 (1.7)          | <0.0005|
| Readability          | 8.2 (1.8)                    | 6.8 (1.8)          | <0.0005|

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