How readable are practice leaflets?

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Over the past few years the subject of doctors' communication skills has come under scrutiny, and in 1991 a consensus conference was held in Toronto.[1] Attention has focused mainly on the outcome of messages between doctor and patient when both are present. Yet much communication takes place in the doctor's absence by means of leaflets and notices. This important topic has seldom been studied.

All general practices now have to produce leaflets for their patients under specified guidelines.[2] Evaluation shows that they are well received[3] and that they can influence patients' behaviour.[4,5] But are they as readable as they might be? We examined 85 practice leaflets from the Avon area using accepted techniques of good written communication. In particular, we used a simple index of readability (the "fog" test) to compare the clarity of the language used in leaflets with that in outside publications.

Fog test

Teachers of effective writing have been using variations of the fog test for about 50 years. Its application to communication in the health services is not new. Ley and colleagues in 1972 advocated greater use of a fog test for *x* ray information leaflets,[6] and it has also been used in writing cervical screening letters (G Sutton, personal communication). We chose the Gunning fog test (see appendix),[7] which uses a simple numerical index of readability. This used to be called the "reading age," but to avoid confusion with chronological age we refer to it as the "reading score." It uses a small sample of words from a document and provides what is essentially a broad measure of long sentences and long words. Despite its relative crudeness it allows comparison. The two examples given in the appendix and the scores from outside sources listed in table I suggest that the comparison is sensible. As a general rule the lower the score the easier the passage is to read.

TABLE I—*Reading scores of various forms of writing*

	Score
Wordsworth (*Upon Westminster Bridge*; repunctuated)	6
Arthur Hailey (*Strong Medicine*)	7
Sunday People (news story)	10
Kingsley Amis (*The Old Devils*)	11
Daily Mail (news story)	12
BMJ article (on audit)	16
Times leader	17
Insurance policy	20

Practice leaflets

The 85 practice leaflets varied considerably in appearance, ranging from typewritten sheets to more elaborate documents, using colour, prominent display type, and illustrations. Typefaces varied, as did the use of white space. However, we considered that only nine of the 85 leaflets (10·6%) met the guidelines of the Royal National Institute for the Blind, which suggest 12 point as the minimum size for a readable typeface.[8] Several used italics (which are considered difficult to read) for body text, and a few used typefaces as small as 8 point. The language varied considerably, and to examine this with the fog test we chose 100 words from the sections dealing with surgery times, appointments, and emergencies. These were likely to be the sections most commonly read by patients. Six leaflets did not have enough information in these sections and we rejected them, leaving 79 for fog test analysis.

The mean reading score of the 79 leaflets was 11·6 (range 8-17; table II). The wide range of scores tended to confirm the fog index as a useful measure of readability and suggested a satisfactory general level of readability. Ten (13%) leaflets, however, had a reading score of 14 and over, and six (7·6%) a reading score of 15 and over. This was on a similar level to or more difficult than papers in the *BMJ*. Doctors should consider how many of their patients could cope with such language.

Although the sample sizes were small, we wished to know if there was a possible explanation for high scores. Practices with three partners produced the most readable leaflets (table III). Overseas qualified single handed general practitioners (n=4) had an average score of 10·5 whereas other single handed general practitioners (n=10) scored 14. On the other hand, there was no apparent link between practices writing simple prose and (*a*) those using good print quality generated by a word processor or professional printing, (*b*) those using cartoons or illustrations, or (*c*) those resisting the temptation to spell "doctor" with a capital D (see below).

Twenty one of the 79 practices (26·6%) used line drawings of their practice, many of which seemed to have been taken from architects' drawings. Only six practices (7·6%) used pictures representing patients, although one of these was from an eighteenth century line drawing. Other front page illustrations included line drawings of a doctor and receptionist, a tree, a doctor's bag and stethoscope, and two ducks and five ducklings. One practice had a photograph of the partners, and one had photographs of the entrance to the surgery and waiting room. Four used cartoons, and eight (10·1%) used thumbnail sketches (telephone, aeroplane, teddy bear) alongside the text.

Producing more readable leaflets

Several publications discuss techniques for effective writing.[9-11] We think that many practices would find the following principles helpful.

(1) Readers' interests should be paramount

Communication takes place only if a message is successfully and completely transferred from one person to another. Hence not only language but also other devices, such as layout and illustrations, should be carefully chosen with the readers' interests in mind. This may mean that messages will have to be simplified.

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TABLE II—*Reading scores of 79 practice leaflets*

Reading score	No
8	2
9	9
10	13
11	18
12	15
13	12
14	4
15	2
16	2
17	2
Total	79

Mean reading score 11·6.

TABLE III—*Reading score and size of partnership*

Partnership	No	Reading score
Single handed	14	12·1
Two partners	13	11·2
Three partners	15	10.6
Four partners	13	11·8
Five partners	13	12·2
Six or more partners	11	11·6
Total	79	11·6

In particular, practices should make sure that they choose a typesize large enough to be legible. They should use clear headlines and avoid a surfeit of bold and italic type. White space should be used to frame the text, and illustrations should be used because they put across messages, not because they look pretty or fill up space.

(2) Use short sentences

Some sentences in the leaflets were needlessly long. For example, "If an emergency arises and you require urgent medical attention you are requested to telephone the surgery, the telephone may be transferred to an answering service and you will be given an alternative number to contact by British Telecom exchange." This has 40 words, of which eight would be considered long in the fog test. It could be rewritten, "If you need medical help urgently please phone the surgery. You may be transferred to an answering service, which will give you another number to ring." This has 26 words, of which five are "long."

(3) Use short words

The leaflets tended to be formal, with words like "require" (need), "if possible" (if you can), "are unable" (cannot, can't), "notified" (told), and "assist" and "assistance" (help). These led to awkward phrases like "will not necessarily be" (may not), "if you consider that your problems warrant an urgent consultation" (if you need to see the doctor urgently), or "to enable the doctor to determine priority visiting" (to allow the doctor to see the most urgent cases first).

(4) Use concepts that readers will understand

Phrases like "acutely ill," "continuity of care," "emergency cover," and "open access" may be familiar to doctors. But do all patients understand what they mean?

(5) Avoid unnecessary words

The word "basis" was sometimes used, as in "appointment basis" or "rota basis." It is not needed. Other redundancies included "three year *interval*," "surgery *opening* hours," and "a *comprehensive* range of *family medical* services."

(6) Use active rather than passive voice

Most writers on writing agree that using the active ("A sees B") rather than passive voice ("B was seen by A") is more economical, more vigorous, and less likely to be misinterpreted (particularly when written "B was seen"). Thus, "A full range of minor operations is undertaken in this practice" may be written as, "This practice undertakes a full range of minor operations." This is shorter and more direct.

(7) Be personal

The common use of the passive also serves to depersonalise. Thus "We believe" rather than "The philosophy of this practice is . . ."; "you should" or "please" rather than "it is preferable that . . ."; or "contact the doctor if you need a home visit" rather than "the doctor can be contacted if a home visit is essential." Writing "A fee may be payable" does not soften the blow.

Only one single handed practice used the first person singular—"I like to visit." None used the plural "We like to visit." Instead they tended to use the more formal, "The doctors operate an appointments system" or "A doctor is available."

(8) Avoid unnecessary capitals

Initial capital letters should be used at the start of each sentence and for proper names (such as Bristol and Bath). They are not needed elsewhere, and many professional communicators believe they have a harmful effect, by slowing the reader, intruding in the text, and giving unnecessary prominence. Many practices used them at will, for words ranging from "Practice" and "Health Centre" to "Contraception," "Employment," and "School Attendance." Twenty six practices (33%) wrote "Doctors" rather than "doctors" in the text, yet 43 (54%) used a capital initial letter for "Nurses." We cannot explain this. One practice used initial capitals for "Social Worker" (but not for doctors or nurses); one practice wrote "Patient."

(9) Follow rules of grammar and syntax

Generally the standard of grammar and spelling was high. However, the efforts of practices to avoid sexist language led to the same error in two different leaflets: "Doctors are . . . They . . ." rather than "The doctor is . . . He or she . . ." This caused some difficulty, as in "Each doctor keeps their own list" rather than "Each doctor keeps his or her own list" or "All doctors keep their own lists."

There was one case of ambiguity caused by faulty syntax ("On Saturday mornings only one doctor is available"—does "only" qualify the mornings or the doctor?) and one ambiguity which could cause an unusually high workload—"Please come to the surgery whenever possible."

Conclusion

We find that many general practitioners are extremely concerned with the technical aspects of their practice leaflets—for example, the quality of printing, photographs, and illustrations. Yet some clearly ignore or misunderstand the needs of their readers and a minority neglect the simple (and comparatively cheap) techniques of good, simple, written communications. We recommend that general practitioners revising their practice leaflets should avoid making value judgments on the popular press and look carefully at the way in which it presents information.

Finally, we recommend the fog test as a useful tool. Practices scoring 12 and over should see whether they can use shorter sentences and simpler words. The guidelines above should prove useful.

1 Simpson M, Buckman R, Stewart M, Maguire P, Lipkin M, Novack D, *et al.* Doctor-patient communication: the Toronto consensus statement. *BMJ* 1991;303:1358-7.
2 Secretaries of State for Health, Wales, Northern Ireland, and Scotland. *Working for patients.* London: HMSO, 1989.
3 Bhopal RS, Gilmour WH, Fallon CW, Bhopas JS, Hamilton I. Evaluation of a practice information leaflet. *Fam Pract* 1990;7:132-7.
4 Nevil RG, Mason C. The evaluation of a general practice information leaflet—a pilot study. *Health Bull (Edinb)* 1987;45:185-9.
5 Morrell DC, Avery AJ, Watkins CJ. Management of minor illness. *BMJ* 1980;280:769-71.
6 Ley P, Goldman M, Bradshaw PW, Kincey JA, Walker CM. The comprehensibility of some X-ray leaflets. *Journal of the Institute of Health Education* 1972;10:47-55.
7 Hennessy B. *Writing feature articles.* Oxford: Heinemann, 1989:19.
8 Royal National Institute for the Blind. *Making print legible.* London: RNIB, 1990.
9 Strunk W, White EB. *The elements of style.* 3rd ed. New York: Macmillan, 1979.
10 Albert T. *Medical journalism: the writer's guide.* Oxford: Radcliffe Medical Press, 1992.
11 Goodman NW, Edwards MB. *Medical writing: a prescription for clarity.* Cambridge: Cambridge University Press, 1991.

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Appendix

FOG TEST

(1) Choose a passage of about 100 words, which must end in a full stop.

(2) Find the average sentence length by dividing 100 by the number of sentences.

(3) Find the number of long words, defined as those of three syllables or more, excluding (*a*) proper nouns; (*b*) combinations of easy words, like photocopy; (*c*) verbs that become

three syllables when "-es," "-ing," and "-ed" are added (for example, committed); (*d*) jargon that the reader will know.

(4) Add the average sentence length to the number of long words.

(5) Multiply by 0·4 to get the "reading score."

Example 1—Appointments can be made by *telephone* on the *appointments* line or in person during *surgery* hours. An *appointment* system is in *operation* during normal *surgery* hours but if you need to see a doctor *urgently* and no *appointment* is *available* please explain to the *receptionist* who will arrange for you to see a doctor as an *emergency*. If your *medical condition* prevents you from attending the *surgery* a home visit can be requested by phone, before 10.00 please. During *surgery* hours your *telephone* call can be put through to a doctor for *immediate* advice and he will decide if a visit is required.

Example 2—Out of hours *telephone* the *surgery* and a recorded message will give you the number of the on call doctor. In a call box you will need enough money for two calls. We share the on call rota with the . . . practices. The doctor on call has a normal day's work before and after his on call *commitment*. Ring the surgery and arrange [appointments] with the *receptionists* during working hours. Please let us know if you are *unable* to keep your *appointment*. If you feel you need a long *appointment* please ask.

Comparison of examples 1 and 2 in fog test

	Example 1	Example 2
(1) No of sentences	4	7
(2) Average sentence length	25	14
(3) Long words	18	7
(4) (2) Plus (3)	43	21
(5) Reading score ((4)×0·4)	17·2	8·4

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