Style Matters

Style in medical journals

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Abstract

A study of medical journals from 1962 showed a constant preoccupation with style. Editors and contributors on both sides of the Atlantic revile unnecessary obscurity and complexity and the use of jargon, barbarisms, vogue words, and weak impersonal constructions. They bewail the pompous use of verbiage and the "medspeak" typified by acronyms and neologisms created by affixation. Suggestions for possible causes of poor medical style range from editorial demands for compression and a general ignorance of the principles of good writing to faulty logic and the subordination of communication to status seeking. The consequences of bad writing may include the fragmentation of knowledge, an increase in the importance of abstracting services, a trend towards free glossy medical newspapers, and, as remedial measures, workshops and courses in medical writing. Some implications for English language teachers working with foreign medical graduates and preclinical students are discussed.

Introduction

There is little precedent for bad medical writing. Great medical figures from Harvey and Descartes to Osler and Fleming, whether writing in Latin or English, expressed themselves with clarity and conviction. Some editors observed signs of rot setting in by the 1880s, but only in the twentieth century has obfuscation become widely acceptable.[1]

In an editorial in the *Canadian Medical Journal* in 1911 Macphail asserted that there was probably more bad writing in medical journals than in any other sort of periodical. Expressing concern over the persistent effort to translate plain terms into jargon, "the mark of a slovenly and slow working mind," and over the use of flamboyant language and threadbare phrases, he concluded sadly that, in respect of style, the old issues were better than the new.[2] Similar statements have become a steady chorus of lamentation, reflected in the length of the list of articles on style turned up by a computer search of medical journals over the past 20 years.

Symptoms

Twelve characteristics of writing in medical journals most often criticised by editors and contributors are as follows:

(1) Jargon. Accepted scientific jargon—that is, the technical vocabulary of a science—is appropriate when it serves as a vehicle for accurate and efficient communication between experts. When it is used to conceal meaning rather than to clarify it, however, it becomes a term of contempt.[3 4] For example, "It has been thusly observed that students in contiguous areas of growth at various levels, no matter where they are, come to the counsellor for help with the presumptuousness of effectiveness of facilitation," which could be simply rephrased: "We have seen that students at all levels of growth come to the counsellor for help and expect to receive it."[5]

(2) Careless diction. This includes contradictory expressions ("absence of breath sounds . . . was present"[6]); dangling participles ("Before acquiring the instrument, the rats were housed in constant temperature chambers"[7]); poor syntax ("The elderly person with dementia, especially when they are transferred to unfamiliar surroundings, tends to wander aimlessly"[8]); and ambiguous referents.

(3) Qualifiers. Vague qualifiers (considerably, quite, relatively) and overused intensifiers (severely, extremely) proliferate in medical writing. Emotionally charged qualifiers (shockingly, distressingly) are regarded by some medical editors as inappropriate.[6]

(4) Poor flow of ideas. This problem of logic rather than language is seen as the most common fault plaguing medical communication. Within a single sentence, and from one sentence to the next, the ideas expressed often do not flow in a readily understandable sequence.[1] For example, "Peter is a 43 year old male who fell pruning a tree with a complete motor and sensory involvement."[9]

(5) Verbiage. This includes circumlocution, redundancy, and an absence of any attempt to prune—for example, "basic fundamental essentials." Asher gave the following example:

"Examples are described which demonstrate that in normal individuals the lowest concentration in which sucrose can be detected by means of gustation differs from the lowest concentration in which sucrose (in the amount employed) has to be ingested in order to produce a demonstrable decrease in olfactory acuity and a noteworthy conversion of sensations interpreted as a satiety associated with ingestion of food."

This means: "Experiments are described which show that normal people can taste sugar in water in quantities not strong enough to interfere with their sense of smell or take away their appetite."[10]

(6) Pomposity. Medical writing is full of pretentious affectations and unnecessarily stilted expressions, often polysyllabic abstract nouns like conceptualisation or prognostication.

(7) Cliches and vogue words. Many authors write in phrases—frozen forms—rather than in words, using longwinded cliches like "It is important to bear in mind that" and "On the basis of these data further investigation seems to be warranted." Vogue words such as parameter, basis, and interface rouse special ire in editors and correspondents, and some authors of books on medical style even provide appendices of words to avoid.[6-8 11]

(8) Barbarisms. These include confusions (homogenous and homogeneous), affixations (defunctionate, prewet), and the

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creation of negative adjectives (non-immune for susceptible; non-compensatory for insufficient). Changes in grammatical function are seen in the converting of nouns to verbs (to network), transitive to intransitive verbs (alcohol was reacted with acetic acid), and the pluralising of abstract nouns (permeabilities, geometries). More examples may be found in Lock's "Pseud's Corner."[8]

(9) Impersonal, indecisive writing resulting from the use of passive rather than active verb forms, the avoidance of the personal pronoun, and the overuse of abstract nouns and weak verb phrases, all of which make medical writing boring and depersonalised. Asher pointed out that overconscientious anonymity can be overdone, as in the article by two authors with the footnote: "Since this article was written, unfortunately one of us has died."[10] Howie contended that only the most determined readers persevere beyond weak summaries such as the following:

"An extensive survey of chickens in various situations has been made to ascertain the incidence and points of origin of salmonellas. The results show where infection has been acquired and point to the need for further research."[12]

(10) Euphemisms and genteelisms, hedging and unnecessary qualification, reflecting academic cowardice or at least overcaution—for example, "It may seem reasonable to suggest that necrotic effects may possibly be due to involvement of some toxin like substance." This sentence, the editors pointed out, contains eight degrees of uncertainty and only means "Necrosis may be due to toxins."[7]

(11) Excessive compression, leading to the telescoping of parallel constructions to the point of ambiguity or piling up of complex noun clusters and stacked modifiers. A phrase like "adult sheep muscle protein iron" impedes understanding, whereas separating the cluster to "protein iron found in the muscle of adult sheep" gives increased precision and clarity.

(12) Punctuation, especially incomplete sentences and confusion over the use of commas in defining and non-defining clauses.[8 13]

Aetiology

Having identified the symptoms, we may now consider the causes of this flux of words. Jargon, prolixity, and imprecision of style are the hallmarks of much twentieth century scholarship and are not limited to medical writing. In a paper on professional jargon, Hayakawa reminds us that the purpose of language is as much to conceal thought as to reveal it. We have only to look at the language used by high priests and bureaucrats, who constantly develop a group jargon to communicate with others in the group and, as important, to obscure communication with those on the outside. A learned vocabulary confers prestige on its users and also creates awe among those who do not understand it. In the past intellectuals used Sanskrit and Latin to keep the peasant in a state of awestruck reverence before mysteries that he could not hope to fathom. The modern scholar can seldom protect his exalted social image by writing in Latin, but he can and does use languages almost as opaque. Hayakawa formulated a general rule: when the status seeking function of a learned vocabulary becomes more important than its communicating function, communication suffers and jargon proliferates.[14]

Many editors and contributors agree with Hayakawa that medical authors write badly on purpose, using an increasingly complex private language to maintain the charisma of medicine. Swinscow commented that the hieratic mode of utterance adopted by medical writers is what one might expect of the rigid, remote priestly figures who stand in rows and columns on the tombs of ancient Egypt.[15] According to Crichton, medical writers today seem concerned "to astound and mystify the reader with a dazzling display of knowledge and scientific acumen; to communicate their profound scientificness, not whatever the title of the paper may be."[1] If they really wanted to be understood they would write simply and express their ideas in the clearest form they could manage. Traditionally, physicians have used language to conceal knowledge from patients, but recently they have even begun to use language to conceal knowledge from each other.[1] The deliberate confusing of language is achieved by the conscious use of jargon and systemic grammatical error.

Though seeing some truth in Crichton's charges, Radovsky suggested that other factors have contributed: the tide of immigration from non-English speaking countries to the United States, the new descriptive (rather than prescriptive) view of grammar and lexis, and the intellectual passivity induced by television. Modern science, he says, is increasingly abstract and complex, and the scientific approach itself weakens writing by discouraging forceful assertion. It is easier to imitate the strings of noun modifiers, the pseudoscientific language, and the other traps to be found everywhere in print than to write elegantly in the compressed style required by medical editors.[16] Other causes suggested are the use of the dictaphone,[17] the continuing neglect by medical schools of instruction in medical writing, and lack of general awareness of the principles of good writing.[18]

An interesting proposal about the cause of obscurity in medical writing was made in 1955 by Baker, who identified German construction—the strings of modifiers that typically load down nominal phrases—as the most insidious evil.[19] Why does a man who would never say "the Jones associated people" write of "the nucleolus associated chromatin"? This piling up before a noun of words that are not adjectives but are used adjectivally is a fashion seldom found in Britain before 1930. Baker ascribed its use in medical literature to American scientists of German descent. "It comes naturally to a German," he said, "to write 'die einzigen, durch unmittelbare Beobachtung sicher zu ermittelnden Stellen.'" Unnecessarily difficult though this construction may seem to an English speaker, at least the German language does help us, through the inflection of these words, to follow our path through such passages. But when this kind of construction is forced artificially on English all pretence of clarity is lost.

There is some historical evidence to support this ingenious suggestion. As a result of the 1912 Flexner report, a German model for training in the basic medical sciences closely linked with research was adopted throughout the United States and has determined the pattern of American preclinical medical education for the past half century.[20] If one adds to this the flood of German immigrants to the United States who were specialists in medical and biological sciences and who published influential papers in their new language Baker may well have a case.

Management

Having looked at the symptoms and considered possible causes, we must ask: What is the prognosis and is there a cure? Crichton thinks that the disease is fatal. It has led, he says, to difficulties for doctors themselves in writing medical articles. In many laboratories publication lags behind research because nobody wants to do the writing; this abominable stuff is naturally quite hard to compose, and such communications are so difficult to read that many physicians now rely on abstracts and oral reports at conferences, and few read papers outside their own fields because they cannot understand them. "It is impossible to guess the cost here in wasted time, duplicated findings, and buried pearls."[1]

Such pessimism is not universally shared. The day is being saved at least in part by the efforts of dedicated subeditors who cut away the verbiage, improve clarity, and activate every dull passive construction. Whimster recommended that each author should learn to do his own subediting with the help of a sympathetic colleague.[5 11] Other suggestions include college courses in medical writing, postgraduate workshops and seminars, reading manuals on medical writing and literary works, both prose and poetry.[6 18 21–23]

Whether or not such measures succeed the current trend

towards free glossy medical newspapers paid for by pharmaceutical advertising seems likely to continue.[24] Since it is essential for the commercial success of these "throwaways" that readers should actually turn their pages, much effort is put into ensuring that they are attractive and interesting. This editorial purpose is far removed from that of some specialist journals, which exist simply to publish papers. Whether anyone reads them is immaterial.

To compensate for the sheer unreadability of so many research journals we should expect an increase in the number and scope of abstracting services. As medical libraries move to the use of on line services and computer printouts, specialist medical journals may be relegated to microfiche if they continue to make up a physical part of library holdings at all. Only those few journals that are constantly read will survive in their present form.

Implications

What are the implications of all this for English language tutors who want to use this information to help their preclinical students or foreign medical graduates?

Reading—Articles should be checked for readability using the criteria listed under "Symptoms." An analysis of six articles, two each from the *Journal of the American Medical Association*, the *New England Journal of Medicine*, and the *BMJ*, in the light of the editorial prescriptions summarised above, showed that one of the editorials selected at random from *JAMA* was bristling with virtually every possible fault. The other five were models of clarity and logical exposition. So provide your students with the best models you can find; the *BMJ* and the *New England Journal of Medicine* are both good sources of well written articles and editorials that are not too technical for preclinical students. Also, give them short examples of more turgid style and opportunities for practice with stacked nominal groups. Help them to acquire the necessary techniques for reading abstracts, especially in their specialty. Finally, teach them to be wary of accepting everything in print as proved fact. Articles in medical journals are full of subjective authormarked observations of opinion, hypothesis, and recommendation that must be distinguished from objective generalisations. Readers should also be trained to recognise the comparative force of related linguistic items—for example, evidence, view, hypothesis, speculation.[25]

Writing—Provide suitable models for the kinds of writing they are expected to do, emphasising Woodford's five requirements of scientific style—logic, precision, clarity, directness, and brevity—together with Shephard's points of readability, organisation, and the integration of non-verbal data.[13]

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A man aged 25 had two severe "colds" during the winter and subsequently developed a unilateral conjunctivitis that did not resolve with "eye drops" and penicillin. It was later diagnosed as a chlamydial infection and with tetracycline steady progress was made. There was no evidence of sexually transmitted disease and the patient had a negative Wasserman reaction. The conjunctivitis seems to have resolved, there are no physical symptoms, and he is working normally, though he still describes himself as "below par." Are there any long term complications or chance of recurrence, and are there any other steps or investigations that should be taken at this stage?

Chlamydial conjunctivitis is commonly secondary to chlamydial genital infection,[1] which is sexually transmitted. The presence of low grade urethritis in the man should be excluded by testing the overnight urethral secretion. Treatment of this patient was with "tetracycline." If this was given as eye ointment associated infection of the genitalia, pharynx, and even lower respiratory infection with pneumonia[2] may have been left untreated. Treatment is best given systemically with oxytetracycline 500 mg four times a day after meals at which milk and milk products are avoided for 14 days. The sexual partner should be tested for chlamydial infection, which may be found even after urethritis in the man has apparently subsided,[1] and she should be treated concurrently.—ERIC M C DUNLOP, consultant venereologist, London.

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A 40 year old woman suffers from the CRST syndrome—calcinosis, Raynaud's phenomenon, sclerodactyly, and telangiectasia. Her main trouble is slowly growing calcification that is ulcerating through the skin on her hands and feet. What treatment is advised?

There is no satisfactory treatment for the calcification that occurs in this type of systemic sclerosis. The deposits of calcium occur not only on the hands and feet but also on the knees and elbows, and not infrequently there is ulceration of the skin and a discharge of chalky material. Sometimes these deposits of calcium may be excised,[1] and they may also be removed with a dental burr and then flushed out of the tissues.[2]—S S BLEEHEN, reader in dermatology, Sheffield.

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