Antiobiotic prescribing rates

James M. Hutchinson and Robert N. Foley have analysed data from the Newfoundland Drug and Medical Care plans and have concluded that factors other than medical indication, namely method of physician remuneration and patient volume, played a major role in determining antibiotic prescribing practices.[1] Unfortunately, their analysis is seriously flawed and cannot be used to make inferences about the *rates* of antiobiotic prescribing.

The main problem is that Hutchinson and Foley have chosen the wrong population for the denominator in calculating their rates. If one wishes to compute antibiotic prescribing rates in a practice, one should compute the number of prescriptions per patient visit or per patient attending the practice. Instead, they have computed the number of prescriptions per patient who received an antibiotic prescription. This statistic says very little about the overuse of antibiotics.

Consider an example: Suppose a colleague and I each have 100 patients in our practices, and 50 of them present each year with complaints of sore throat. I choose to prescribe an antibiotic to every patient who complains of a sore throat, writing 50 prescriptions in that year. According to the authors, my prescribing rate is thus 50 divided by 50 unique patients, which equals 1 per patient per year. My colleague diagnoses strep throat in 1 of the 50 patients visiting him and prescribes an antibiotic to him, but not to the other 49. That patient returns twice with recurrent strep throat and receives 2 more prescriptions. My colleague's prescribing rate is thus 3 prescriptions per unique patient per year. According to the authors' method, my prescribing rate is one-third of that of my colleague. Quite clearly, the authors' method does not lead to useful policy conclusions.

Murray M. Finkelstein, PhD, MD CM
Toronto, Ont.

Reference
1. Hutchinson JM, Foley RN. Method of physician remuneration and rates of antibiotic prescription. *CMAJ* 1999;160(7):1013-7.

The article by James M. Hutchinson and Robert N. Foley presents an interesting approach with regard to determining the use of antibiotics.[1] If one is to interpret these data, it would be helpful to know whether the patient populations are comparable for the salaried physicians and the fee-for-service physicians. My impression (and I would be happy to be corrected) is that in general, fee-for-service physicians tend to see patients who feel their symptoms are acute, sooner than do salaried physicians, who might spend more time with a patient and thus have lower patient volumes but longer waiting times. The difference in waiting time may change the type of population seen by the 2 groups of physicians.

Patrick J. Potter, MD
London, Ont.

Reference
1. Hutchinson JM, Foley RN. Method of physician remuneration and rates of antibiotic prescription. *CMAJ* 1999;160(7):1013-7.

[One of the authors responds:]

Murray M. Finkelstein quite rightly points out a potential methodological flaw in our study of antibiotic prescribing practices in Newfoundland. I agree that the better denominator would have been total patients seen or total number of patients in a given physician's practice; however, these data were not available. In Newfoundland there is no rostering of patients, and salaried physicians are not obliged to report patient numbers.

Finkelstein also, quite rightly, points out that if a physician prescribes to 1 individual with a given condition 3 times in a year and 49 others with that same condition receive no prescription then the physician's rate of prescription is 3 using our methods. There is a possibility that this type of variance in physician behaviour explains the difference among Newfoundland physicians that cannot be refuted by our data. It is my opinion, however, that it is unlikely.

It must be remembered that all of the physicians in the province were studied and that to explain the large differences found between all the fee-for-service and all the salaried general practitioners using the proffered logic one must infer that the predominant pattern of practice among fee-for-service general practitioners is a high threshold before the first antibiotic is prescribed (conservative prescribing) and then a low threshold thereafter for those patients prescribed to once already (liberal prescribing) as in Finklestein's example. It is more likely that a given physician's pattern of prescription remains quite constant and that the associations described in our paper are valid.

As for Patrick J. Potter's concerns that the patient populations may be inherently different between fee-for-service and salaried practitioners, this may be true. I'm not sure that it matters

from the overall perspective of the urgent necessity to reduce antibiotic prescription rates in Canada. This study was not perfect science and I do not, in general, advocate one type of physician remuneration over another. I am, however, extremely concerned with antibiotic prescription rates overall in Canada. Recently the first strains of vancomycin-resistant *Staphylococcus aureus* and *Streptococcus pneumoniae* were described. Will they appear in Canada? Of course they will. Yet we Canadian physicians continue to prescribe antibiotics at rates of close to 1 prescription per person per year.[1] It is time that we band together and markedly change this circumstance before it is too late. If that means discussing the influence of physician organization and remuneration then let's discuss it, quickly.

James M. Hutchinson, MD
St. John's, Nfld.

Reference

1. Controlling antimicrobial resistance: an integrated action plan for Canadians. *Can Commun Dis Rep* 1997; 23S7(Suppl).

"I need more power, Scotty"

Robert Patterson did a good job reviewing the workings of voice-recognition software.[1] Unfortunately, his conclusion that the "program did not save any money" is, in the current parlance of evidence-based medicine, not generalizable.

Patterson committed a cardinal error by using an underpowered computer system. The Pentium Pro 200-MHz machine with 64 MB of RAM that he used during his 3-month trial is woefully inadequate for the current generation of voice-recognition programs. Using the same dictation software as Patterson on a machine with the same power as his, I had virtually identical results. However, when I used the same software on a recently purchased computer with a Pentium II 400-MHz processor and 256 MB of RAM, both speed and accuracy were dramatically better.

A small but growing number of physicians are now using voice-recognition software to create their medical-encounter notes. With the newest systems, most physicians can speak at their usual speed and achieve fairly accurate results.

Although the physician may choose to correct the raw transcription personally, most doctors find it more cost-effective to have a transcriptionist review the combined text and sound file and correct it. My own experiment over a 2-week period was cost-effective, although I was forced to discontinue using the program because of staffing problems.

At present, successful use of voice-recognition systems still requires that the physician and office staff be willing to withstand significant implementation hassles. As these programs continue to improve, however, increasing numbers of physicians will discover the benefits — both financial and time — provided by voice-recognition systems.

Mark Dermer, MD
Practice Management Consultant
MD Management Ltd.
Ottawa, Ont.

Reference

1. Patterson R. Dictation software: we're not there yet. *CMAJ* 1999;160(6):885-6.

[The author responds:]

Mark Dermer's experience with dictation software seems to echo my own — he too mentions significant implementation hassles and predicts that further improvements are needed before there is wide acceptance in the medical community.

I was simply trying to cut through the advertising hype to see how the system worked in a real office setting. I appreciate Dermer's concern that speed matters, but I doubt that most physicians have a 400-MHz machine with 256 MB of RAM in their offices, nor would they want to run out and buy one to run a single program.

Dragon Systems recommends a minimal system configuration of a 133-MHz Pentium processor with 32 MB of RAM to run its NaturallySpeaking *Medical Suite*. These requirements were exceeded by my Pentium Pro 200.

With time, the price of personal computers will continue to drop and performance will improve, and soon speech-recognition programs will be cost-effective and virtually hassle free for all users. Until then, one intermediate step suggested by Dermer is to have a local transcriptionist edit the dictation. Another option is to save the dictation as a sound file and ship it via the Internet to a transcription company, several of which use typists in countries where labour costs are low. As for me, I've gone back to my tape recorder and office assistant.

Finally, for those who wish to learn more, an excellent review of dictation software technology, with a comparison of different commercial products, was published recently.[1]

Robert Patterson MD, MSc
Leamington, Ont.

Reference

1. Zafar A, Overhage JM, McDonald J. Continuous speech recognition for clinicians. *J Am Med Inform Assoc* 1999;6:195-204.

Stop building up our hopes

I am a 41-year-old man and enjoy reading my partner's copy of *CMAJ*. The headline for one of your recent letters[1] nearly jumped off the page: "New method for prostate exam." Like a blackjack player whose first card is an ace, I was captivated and hopeful about a much-needed breakthrough in medical science.

The prospect of an alternative to the conventional method of digital rectal examination for palpation of the prostate would no doubt change the psyche of all male patients as they approach their routine medical. The detailed description of the conventional procedure, while sounding much like Ben Hogan articulating the benefits of supination and pronation in the golf swing, evoked images of great pain and discomfort. After whimpering about the status quo and being wistful about a discovery of great proportions, how can