Delayed antibiotic prescriptions: What are the experiences and attitudes of physicians and patients?

BRUCE ARROLL, MB, CHB, PHD; FELICITY GOODYEAR-SMITH, MB, CHB, MGP; DAVID R. THOMAS, BA, MA, PHD; AND NGAIRE KERSE, MB, CHB, PHD
Auckland, New Zealand

■ OBJECTIVE To explore the experiences and opinions of family physicians and patients regarding the delay of antibiotic prescriptions, to be dispensed if symptoms persist or worsen over time, in treating upper respiratory tract infections.
■ STUDY DESIGN Qualitative study using semistructured interviews conducted in family practice in Auckland, New Zealand.
■ POPULATION Thirteen physicians recruited from a study of family physicians' reported antibiotic prescribing and 13 patients recruited from the intervention arm of a randomized controlled trial on delayed antibiotic prescribing.
■ OUTCOMES MEASURED Patients' and physicians' experiences of delayed antibiotic prescriptions for upper respiratory tract infections.
■ RESULTS The primary themes identified were value judgments of antibiotics, decreased antibiotic use, patient-centered factors, effects on the physician–patient relationship, patient convenience, adverse effects of delaying prescription, and selectivity for use of antibiotics. Many themes were common to both patients and physicians. Physicians valued empowering patients' decision making about their health care management more highly than did patients. Decreasing antibiotic use was not a key factor for most patients. Both groups acknowledged the value in saving patients time and money. Physicians viewed the strategy as giving patients reassurance and meeting their expectations for antibiotics. Negative implications included perception of physician incompetence and physician loss of management control. Opinions were mixed regarding which patients, under which conditions, were suitable for delayed antibiotic prescriptions.
■ CONCLUSIONS Although delayed antibiotic prescriptions are effective in decreasing antibiotic use for conditions not clinically warranting antibiotics, neither patients nor physicians universally endorsed this strategy. Research to establish formalized recommendations for patient suitability and instructions for use would be of value.
■ KEY WORDS Antibiotics; family practice; qualitative evaluation; upper respiratory tract infection. (*J Fam Pract 2002; 51:954-959*)

KEY POINTS FOR CLINICIANS

- Delayed antibiotic prescriptions are effective in decreasing antibiotic use for conditions not clinically warranting antibiotics.
- Family practitioners valued empowering patients to be more involved in decision making about their health care management more highly than did patients.
- Family practitioners generally viewed the strategy as giving patients reassurance and meeting their expectations for antibiotics.
- Both patients and physicians agreed that delayed prescribing is not appropriate for all patients, but currently no consistent criteria have been established.

Family physicians often prescribe antibiotics for common colds despite being aware of their marginal effectiveness for such.[1,2] Major contributing factors are overt patient expectation or demand for antibiotics[3–5] and the physician's perception that the patient expects antibiotics.[6,7] Detrimental effects of antibiotic overuse include adverse effects on patients, development of antibiotic-resistant bacteria,[8,9] and increased health care costs.[10–12]

Although it is possible to "just say no" to patients' demands for antibiotics,[13] family physicians may be under considerable pressure to prescribe. A strategy to decrease prescribing unnecessary antibiotics without damaging the physician–patient relationship involves giving a delayed (or deferred) prescription, which is a prescription to be filled at a later time if the patient's condition fails to improve or deteriorates.[14] Couchman et al[14] reported that 50% of patients given "'back-up"' antibiotic prescriptions did not fill them. Cates[15] found that

From the Division of General Practice and Primary Health Care (B.A., F.G.-S., N.K.) and the Department of Community Health, Faculty of Medical and Health Sciences, University of Auckland, Auckland, New Zealand. The authors report no competing interests. Address reprint requests to Bruce Arroll, MB, ChB, PhD, Division of General Practice and Primary Health Care, Faculty of Medical and Health Sciences, University of Auckland Private Bag 92019, Auckland, New Zealand. E-mail: b.arroll@auckland.ac.nz.

delayed prescribing significantly decreased antibiotic use in children with acute otitis media. Results of a randomized controlled trial (RCT) found that 55% of patients with uncomplicated cough did not fill their delayed prescription, although patients demonstrated some dissatisfaction with the strategy.[16] Little et al studied its effectiveness in managing sore throat[17] and otitis media.[18] In our recently published RCT[19] we reported that delayed prescribing significantly decreased the filling of antibiotic prescriptions for the common cold.

The use and effectiveness of a new medical intervention is influenced by how the intervention is viewed by both physicians and patients. Delayed prescription use for the common cold has not been assessed in any qualitative study, although the topic of 1 qualitative study was antibiotic prescribing for sore throats.[2] The researchers found that although making the diagnosis was not difficult, treatment was a problem because one third of patients expected to be prescribed antibiotics. Our aim was to explore issues and attitudes regarding delayed prescription use from the perspectives of family physicians and patients.

METHODS

We used a qualitative approach (1) to explore the complexity of, and relations between, issues identified in delayed prescription use, and (2) to describe the experiences and attitudes of both physicians and patients regarding delayed prescription use. The physicians were recruited from a list of high-prescribers (20 or more delayed prescriptions per month) or low prescribers (1 or fewer delayed prescriptions per month). This list had been prepared for a previous study in which 100 random family physicians had reported their use of delayed prescribing.[1] Patients were recruited from the intervention arm of an RCT on delayed prescribing that examined the hypothesis that delayed prescriptions would result in decreased use of antibiotics for the common cold.[19] Inclusion criteria comprised both patients receiving delayed prescriptions and parents of children receiving delayed prescriptions. Patients in the RCT had given written consent to subsequent interview for the qualitative study. Approval for our study was granted by the Auckland Ethics Committee.

Thirteen physicians and 13 patients were interviewed by telephone (F.G.-S. served as the interviewer). Purposive sampling was used to deliberately include "outliers"' with respect to characteristics such as sex, socioeconomic level, and geographic location.[20,21] This built sample diversity with respect to different subjects and themes along the main topics of interest (eg, the advantages and disadvantages of delayed prescribing) to improve data robustness. The physicians comprised men and women ranging in age from their 30s to 60s, including both New Zealand–trained physicians and immigrants (from Asia and South Africa) with practice locations ranging from lower to upper middle-class suburbs. Both male and female patients were interviewed, ranging in age from adolescent to elderly (specific ages unavailable). Parents of children receiving delayed prescriptions were included in the patient population. Ethnicity and socioeconomic level included those of European, Moori, and Asian extraction from family backgrounds of differing socioeconomic districts.

The interview data were collected in an iterative process in which themes from the early interviews were specifically checked in later interviews. Interviewing ceased once data saturation had occurred, ie, when no new themes emerged.[22–24] Family physicians were paid for their time. Semistructured, open-ended questions were progressively focused into more structured questions. Questions for physicians included their views on delayed prescribing; the duration, frequency, and circumstances of their use of delayed prescribing; and their perceived advantages and disadvantages of delayed prescribing. Questions for patients included their experiences of receiving delayed prescriptions; their preferences for decision making regarding antibiotic use; and their views about delayed prescribing. The interviews were audiotaped, and although the hand-written interview notes were not transcribed, they were checked against the audio recordings. Recording ceased once it was established that concurrent hand-written notes were similar (nearly verbatim) to the recorded versions. Interviews typically lasted between 10 and 20 minutes.

A general inductive approach, similar to grounded theory, was used. Individual written interview responses were initially analyzed to identify subthemes. Interviews were then collated and analyzed for emerging categories. These were combined into major themes through ongoing discussions with an experienced qualitative researcher (D.T.) and rereading of the transcripts by the first 3 authors until consensus was reached regarding the main themes being expressed. The data were double-coded by an independent researcher (N.K.) as a consistency check, and discrepancies were resolved by negotiation between 2 of the researchers (N.K., F.G.). Patient and physician data sets were coded separately.

RESULTS

A picture emerged of both advantages and disadvantages of delayed prescription use. An associated scenario was the variability of criteria used to decide whether delayed prescribing was considered appropriate or inappropriate. Seven primary themes were identified (Table 1): value judgment of antibiotics, decreased antibiotic use, patient-centered factors, effects on the physician–patient relationship, patient convenience, adverse effects of

TABLE 1

Descriptions of themes

Theme	Description
Value judgment of antibiotics	The perception that antibiotics are either "good and necessary" for people or "bad" for people
Decreased antibiotic use	The desire to decrease unnecessary antibiotic use to avoid patient side-effects, to decrease the drug bill for taxpayers, and to decrease the development of resistance to antibiotics
Patient-centered factors	The ability of physicians to educate patients and empower them to be more involved in decision making about their health care management
Effects on the physician–patient relationship	The perception that delayed prescribing might have either positive effects (eg, reassuring patients and meeting their expectations for antibiotics) or negative effects (eg, negative patient perception of physician competence or increased patient concerns about entitlement from the health system)
Patient convenience	The time and money patients save
Adverse effects of delayed prescribing	The possible adverse effects, with potential medicolegal ramifications: the missing or masking of serious illness; the physician losing control of the patient's medical situation; the physician becoming less able to monitor outcomes; the possibility that some patients might still take antibiotic unnecessarily; and/or the possibility that antibiotics might be saved and later used inappropriately by another family member
Selectivity for use	The factors determining who might get a delayed prescription: patient age, education, ability to understand English, transiency to the practice, and other varying criteria for use regarding specific conditions

delayed prescribing, and selectivity for use. Many themes were common to both groups of subjects. Examples of their responses illustrating the primary themes are shown in Table 2.

Value judgment of antibiotics

The theme of "value judgment of antibiotics" was evident only among patients. Several expressed the opinion that antibiotics were the necessary treatment to take every time they became ill. Conversely, other patients considered antibiotics bad for them and preferred to use alternatives such as naturopathic medications.

Decreased antibiotic use

The primary motivation for delayed prescribing by physicians was to decrease unnecessary antibiotic use. Benefits include avoiding patient side effects; decreasing the drug bill for taxpayers; and, especially, decreasing the occurrence of antibiotic resistance. Several patients made comments relevant to this theme. None identified decreasing resistance as an important goal, but 3 patients said the strategy could help avoid unwarranted antibiotic use.

Patient-centered factors

"Patient-centered factors" was a strong theme to emerge—especially from high-prescriber physicians. The physicians indicated that delayed prescribing helped them practice more patient-centered medicine—educating patients to take more responsibility for their own health care management and being more receptive to patient needs. Some physicians took into account pending weekends or patients' travel or work commitments when offering delayed prescriptions. Although some patients mentioned their involvement in decision making, this aspect generally was not a key factor for many of them. Some liked to make the decision for themselves, which included using their "delayed" prescription immediately. Most patients did not wish to have an active role in decision making and preferred their physicians to decide for them. No patients commented on the role of the physician in providing them with education on their health matters.

Effects on the physician–patient relationship

The theme of "effects on the physician–patient relationship" delineated an associated factor for physicians: the strategy of delayed prescribing strengthened physician–patient relationships by helping physicians cope with the pressure they experienced from patients expecting antibiotics for common colds; by reassuring patients; by giving patients something to take home; and by preventing patients from going to a different physician to obtain antibiotics. An alternative view, expressed by one low-prescriber physician, was that delayed prescribing might damage the physician–patient relationship because the patient might consider the physician incompetent.

For a few patients, use of delayed prescriptions was reassuring. Several patients' expectations that antibiotics were required persisted at the end of the consultation, and they chose to have their prescriptions filled immediately. Presumably, they would have gone elsewhere had they left the consultation empty-handed. Use of delayed prescribing had a potential negative effect on the physician–patient relationship for at least 2 patients.

TABLE 2

Answers from physicians and patients interviewed about their use of delayed prescriptions

Theme	Quotes from physicians	Quotes from patients
Value judgment of antibiotics		"I wanted to prove to myself I could get better without antibiotics." "I expect to get antibiotics if I go to the physician with the flu."
Decreased antibiotic use	"Using a delayed prescription means you don't give unnecessary antibiotics."	"I don't like putting unnecessary drugs into my body."
Patient-centered factors	"[Use of delayed prescribing provides] an opportunity to educate and empower patients, allows them to make decisions for themselves, and offers them convenience of both access and cost. Otherwise they would have to return [to the physician's office] if they [their condition] deteriorated."	"I like to decide for myself; I know when I need antibiotics." "I prefer the physician to make the decision."
Effects on the physician–patient relationship	"The patient goes out the door with something. It does not damage the physician–patient relationship; the patient does not feel short-changed." "The patient might think you don't know what you are doing, that you are sitting on the fence . . . the patient has decided to come to physician for advice and wants to be told what to do, not [be] given more options."	Some parents panic; it helps to ease their "minds." "If I go to the physician, it is because I know I need antibiotics." "Younger physicians these days don't have the experience; they are too busy to know when something is really wrong."
Patient convenience	"Patient convenience: preventing after-hours office visits saves the patient time and money."	"It saved [me] time and money."
Adverse effects of delayed prescribing	"Some patients will start right away anyway and use antibiotic when they really don't need it. … [the physician has] no way of knowing whether they take it or not… [patients] may not seek medial attention if they get sicker because they have started the antibiotic and assume that's all that can be done." "There could be medicolegal problems with a litigious patient."	"Some people might take it [antibiotics] unnecessarily." "Maybe some people need to be told what to do and would get confused."
Selectivity for use	"I would never give [a delayed prescription] to very small children, infants, or even children younger than 3 or 4 [years]." "I mostly use it [delayed prescribing] in children younger than 6 years. "I don't use [delayed prescribing with] patients, especially elderly ones, having a past history of chronic illness—such as bronchitis, excessive smoking, sinusitis—that has required antibiotics."	"[Delayed prescribing is] good for me but not necessarily for everybody. Many people . . . have a very poor understanding of medicines." "I want the physician to make the decision when it's my children; I'd rather take them back [to the office if necessary]."

They perceived delayed prescribing as an indication of physician indecisiveness and incompetence or that the physician was trying to hold down costs to the patient at the risk of the patient's being ill.

Patient convenience

The theme of "patient convenience" and cost savings was a strong theme among physicians and less so among patients. Several patients identified that delayed prescriptions could save them trouble and expense. For 3 patients this was not an issue, but they acknowledged it could be of value to busy working people or low-income patients.

Adverse effects of delayed prescribing

Regarding the theme of "adverse effects of delayed prescribing," some physicians saw little or no disadvantage if delayed prescriptions were given to the right patients with correct instructions. However, low-prescribers identified a number of possible adverse effects of delayed prescriptions, such as leading to missing or masking serious illness, with possible medicolegal ramifications. Physicians were concerned about being perceived by patients as losing control of the situation and being less able to monitor outcomes. Even using delayed prescribing, some patients might still take antibiotics unnecessarily. The possibility also exists that the antibiotic might be saved and later used inappropriately by another family member.

Patients identified several potential problems, often for people other than themselves. Not only could delayed prescriptions have the potential to be confusing, especially for less-educated people, but 1 patient thought the practice might lead to patients taking antibiotics unnecessarily.

Selectivity for use

Physicians generally were selective about patients for whom they considered delayed prescribing appropriate. Patients who were poorly educated, who had a bad command of English, or who were transient to the practice were identified as poor candidates for receiving delayed prescriptions. Most physicians restricted delayed prescriptions to a particular age range. However, within this category there was considerable variability and inconsistency. Many used delayed prescriptions only for children, with children younger than 6 years being the most suitable group; others used delayed prescribing only for children older than 6 to 8 years. One physician would not use the strategy in very young children, ie, younger than 3 years. There was no consensus regarding circumstances or specific instructions for use. Some used delayed prescribing only with clearly viral illnesses; others employed the strategy in patients with chronic illnesses during which secondary infection was more likely. Instructions varied regarding symptoms to watch out for and how long to wait before filling the prescription.

Selection of patients was also a dominant theme for patients. Although they thought delayed prescribing might be acceptable for themselves, a number of patients believed that others might not understand or get confused. One patient was happy to make decisions about her own management, but believed the physician should make decisions about her children. Patients did not venture any opinions regarding conditions for which they thought use of delayed prescribing was warranted.

DISCUSSION

Delayed prescribing is a strategy developed primarily to decrease unnecessary antibiotic use in the management of upper respiratory tract infections. Although physicians emphasized the importance of decreasing antimicrobial resistance, patients did not consider this factor. Continued public health education on this issue, including family physicians providing pertinent information to individual patients, could be helpful. Many patients have relatively fixed ideas that antibiotics are either "good" or "bad" for their health without knowing the personal and public health nuances of antibiotic prescribing.

Patients may pressure their physicians for unnecessary antibiotics either by direct request or indirectly by the way they present their complaint.[25] Physicians may also incorrectly perceive that patients want antibiotics.[6] This study showed that physicians are likely to use delayed prescription as a technique to decrease antibiotic use in patients they perceive as wanting antibiotics regardless of the medications' appropriateness.

Empowering patients to have more control over their health care management was more important to physicians than patients. Patients held differing views, and whereas some appreciated the option of controlling the decision whether and when to take antibiotics, others expected "the physician to decide." Perhaps improved physician–patient communication, as well as delayed prescribing, could help patients better understand about antibiotic use.

Many patients in this study had previously received antibiotics for common colds. Most physicians believed that using delayed prescriptions was a compromise strategy that prevented patients from feeling brushed off and offered reassurance, thus protecting the physician–patient relationship. Some patients reciprocated this view. However, a concern expressed by 1 physician that patients might view delayed prescribing as physician incompetence was substantiated by comments from other patients.

The potential adverse effects identified by some of the physicians, such as a serious disorder being masked or missed and physicians having less medical control, could be largely remedied by estab-

lishing criteria for suitable patient selection and improved educational resources as suggested above. Physicians and patients both expressed that some patients might automatically have their prescriptions filled and thus take antibiotics unnecessarily. Given that 2 patients had their "delayed" prescriptions filled immediately, this concern appears justified. No safeguard could entirely prevent inappropriate use by other family members.

Both physicians and patients commented that delayed prescribing is not appropriate for all patients. Patients need to understand the explanation of why antibiotics are not currently indicated and the instructions as to when they might be needed. In our opinion, patient comprehension might be greatly assisted by the use of clear handouts explaining, in patient-friendly terms, the management of upper respiratory tract infections.

The use of delayed prescribing in family practice is becoming more common.[14,16–19] Considerable inconsistency and contradictory practices were found regarding its use in children and adults. Such diversity in physicians' views regarding suitable ages raises questions about the optimal use of delayed prescriptions. Similarly, no consensus was found regarding circumstances and instructions under which physicians would use delayed prescribing. The development of more formalized recommendations regarding patient suitability and criteria for delayed prescribing is needed.

Given the concern that some patients might be confused about when to use a delayed prescription, placing the prescription in an envelope with clearly written instructions (ie, when to use and under what conditions) on the outside might ameliorate this difficulty. This practice might serve to further decrease unnecessary antibiotic use. Alternatively, special patient instructions in written form may be warranted, as was done in a controlled before–after study of delayed prescriptions for otitis media.[15]

In conclusion, previous research has shown delayed prescribing to be an effective means of decreasing antibiotic consumption for conditions not clinically warranting their use.[14,15,19] However, not all physicians or patients demonstrated complete satisfaction with the strategy, and both groups agreed that selectivity is required for issuing a delayed prescription. Unlike interventions such as administering new drugs, physicians have spontaneously and independently generated the practice of delayed prescribing. Consequently, the practice varies considerably with respect to which patients, conditions, and instructions are considered appropriate. Formalizing recommendations for patient suitability and instructions for use may be required to ensure safety and consistency. Long-term safety issues will need to be monitored using longitudinal, large-cohort studies.

REFERENCES

1. Arroll B, Goodyear-Smith F. General practitioner management of upper respiratory tract infections: when are antibiotics prescribed? N Z Med J 2000; 113:493–6.
2. Butler CC, Rollnick S, Pill R, Maggs-Rapport F, Stott N. Understanding the culture of prescribing: qualitative study of general practitioners' and patients' perceptions of antibiotics for sore throats. Br Med J 1998; 317:637–42.
3. Arroll B, Everts N. The common cold: what does the public think and want? N Z Fam Physician 1999; 26:51–6.
4. Macfarlane J, Holmes W. Influence of patients' expectations on antibiotic management of acute lower respiratory tract illness in general practice: questionnaire study. Br Med J 1997; 315:1211–4.
5. Palmer DA, Bauchner H. Parents' and physicians' views on antibiotics. Pediatrics 1997; 99:E6.
6. Cockburn J, Pit S. Prescribing behaviour in clinical practice: patients' expectations and physicians' perceptions of patients' expectations—a questionnaire study. Br Med J 1997; 315:520–3.
7. Britten N. Patients demands for prescriptions in primary care. Br Med J 1995; 310:1084–5.
8. Arason VA, Kristinsson KG, Sigurdsson JA, Stefansdottir G, Molstad S, Gudmundsson S. Do antimicrobials increase the carriage rate of penicillin resistant pneumococci in children? Cross sectional prevalence study. Br Med J 1996; 313:387–91.
9. Verkatesum P, Innes JA. Antibiotic resistance in common acute respiratory pathogens. Thorax 1995; 50:481–3.
10. McCaig LF, Hughes JM. Trends in antimicrobial drug prescribing among office-based physicians in the United States. JAMA 1995; 273:214–9.
11. Hueston WJ, Mainous AG 3rd, Ornstein S, Pan Q, Jenkins R. Antibiotics for upper respiratory tract infections. Follow-up utilization and antibiotic use. Arch Fam Med 1999; 8:426–30.
12. Mainous AG 3rd, Hueston WJ. The cost of antibiotics in treating upper respiratory tract infections in a Medicaid population. Arch Fam Med 1998; 7:45–9.
13. Thomas MG, Arroll B. "Just say no"—reducing the use of antibiotics for colds, bronchitis and sinusitis. N Z Med J 2000; 113:287–9.
14. Couchman GR, Rascoe TG, Forjuoh SN. Back-up antibiotic prescriptions for common respiratory symptoms. Patient satisfaction and fill rates. J Fam Pract 2000; 49:907–13.
15. Cates C. An evidence based approach to reducing antibiotic use in children with acute otitis media: controlled before and after study. Br Med J 1999; 318:715–6.
16. Dowell J, Pitkethly M, Bain J, Martin S. A randomised controlled trial of delayed antibiotic prescribing as a strategy for managing uncomplicated respiratory tract infection in primary care. Br J Gen Pract 2001; 51:200–5.
17. Little P, Williamson I, Warner G, Gould C, Gantley M, Kinmonth AL. Open randomised trial of prescribing strategies in managing sore throat. Br Med J 1997; 314:722–7.
18. Little P, Gould C, Williamson I, Moore M, Warner G, Dunleavey J. Pragmatic randomised controlled trial of two prescribing strategies for childhood acute otitis media. Br Med J 2001; 322:336–42.
19. Arroll B, Kenealy T, Kerse N. Does a delayed prescription reduce unnecessary antibiotic use? A randomized controlled trial. J Fam Pract 2002; 51:324–8.
20. Curtis S, Gesler W, Smith G, Washburn S. Approaches to sampling and case selection in qualitative research: examples in the geography of health. Soc Sci Med 2000; 50:1001–4.
21. Barbour RS. Checklists for improving rigour in qualitative research: a case of the tail wagging the dog? Br Med J 2001; 322:1115–7.
22. Guba EG, Lincoln YS. Competing paradigms in qualitative research. In: Denzin NK, Lincoln YS, eds. Handbook of Qualitative Research. Thousand Oaks, Calif: Sage Publications Inc; 1994:105–117.
23. Kuzel AJ, Engel JD, Addison RB, Bogdewic SP. Desirable features of qualitative research. Fam Pract Res J 1994; 14:369–78.
24. Strauss A, Corbin J. Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory. 2nd ed. Thousand Oaks, Calif: Sage Publications; 1998.
25. Scott JG, Cohen D, DiCicco-Bloom B, Orzano AJ, Jaen CR, Crabtree BF. Antibiotic use in acute respiratory infections and the ways patients pressure physicians for a prescription. J Fam Pract 2001; 50:853–8.

JFP