Effects of perceived patient demand on prescribing anti-infective drugs

Evidence

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Abstract

Background: Although patient demand is frequently cited by physicians as a reason for inappropriate prescribing, the phenomenon has not been adequately studied. The objectives of this study were to determine the prevalence of perceived patient demand in physician–patient encounters; to identify characteristics of the patient, physician and prescribing situation that are associated with perceived demand; and to determine the influence of perceived demand on physicians' prescribing behaviour.

Methods: An observational study using 2 survey approaches was conducted in February and March 1996. Over a 2-day period 20 family physicians in the Toronto area completed a brief questionnaire for each patient encounter related to suspected infectious disease. Physicians were later asked in an interview to select and describe 1 or 2 incidents from these encounters during which perceived patient demand influenced their prescribing (critical incident technique).

Results: Perceived patient demand was reported in 124 (48%) of the 260 physician–patient encounters; however, in almost 80% of these encounters physicians did not think that the demand had much influence on their decision to prescribe an anti-infective. When clinical need was uncertain, 28 (82%) of 34 patients seeking an anti-infective were prescribed one, and physicians reported that they were influenced either "moderately" or "quite a bit" by perceived patient demand in over 50% of these cases. Of the 35 critical prescribing incidents identified during the interviews, anti-infectives were prescribed in 17 (49%); the reasons for prescribing in these situations were categorized.

Interpretation: This study provides preliminary data on the prevalence and influence of perceived patient demand in prescribing anti-infectives. Patient demand had more influence on prescribing when physicians were uncertain of the need for an anti-infective.

Efforts to rectify the problem of inappropriate prescribing have included guidelines for prescribing, educational strategies and the provision of feedback following practice audits.[1] The results have been disappointing, however, possibly because strategies have focused on assumed knowledge deficits rather than on personal interaction factors, the most prominent of which is patient demand.[2–5]

The influence of patient demand on the prescribing of medications for infections, especially respiratory tract infections, is particularly problematic.[4–11] We conducted this study to determine the prevalence of patient demand, as perceived by community-based physicians when deciding whether to prescribe an anti-infective drug; to identify characteristics of the patient, physician and prescribing situation associated with perceived patient demand; and to determine the influence of such demand on physicians' prescribing behaviour.

Methods

The study, conducted in February and March 1996, was a nonrandom survey using 2 complementary data-collection methods (questionnaire and interview). The study design was reviewed and approved by the Human Subjects Committee of the University of Toronto. Questionnaire items and administration procedures were developed with the assistance of a focus group of 5 family physicians (FPs), and forms and procedures were pilot tested with 2

FPs. A convenience sample of FPs within a 50-km radius of Toronto was then recruited. The final sample size was based on a goal of collecting 20–25 critical incidents. The initial strategy was to recruit from among academically affiliated physicians in a teaching practice group. This strategy was abandoned because of poor response, however, and physicians were recruited on the basis of convenience and referral.

Over a 2-day period FPs completed a brief questionnaire for each patient encounter in which a suspected infection was the reason for the patient's visit. Questionnaire items included the day, time and location of the visit; the age, sex and status (i.e., known to FP) of the patient; the reason for the visit and the body system affected; the need for an anti-infective; the perceived demand for an anti-infective; the decision whether to prescribe an anti-infective; and the extent to which the perceived demand influenced the prescribing decision ("not at all" to "extremely"). For the purposes of this study, patient demand was defined as "an action, either overt or covert, by the patient directed to the physician that signifies preference for a prescription drug."

A semistructured interview modelled on the critical incident technique[12,13] was then conducted with each FP, either by telephone or in person, within 2 weeks after the completion of the questionnaire. This technique is a qualitative research method that focuses on respondents' accounts of actual events (incidents) rather than on generalization or opinion. Incidents are designated "critical" when the purpose or intent of the action and the outcome of the incident are reasonably clear and relevant to the phenomenon being studied.[12] Selected incidents are examined by a panel and categorized; categories are created until all incidents are assigned. A key aspect of the critical incident technique is that the categories derived are based solely on the data and not on preconceived theories.[12] In medical research the technique has been used in studies pertaining to improving the quality of health care.[14–17]

In the interviews FPs were asked to recall 1 or 2 specific encounters from the 2-day data-collection period in which perceived patient demand either influenced a prescribing decision or was especially prominent (i.e., a critical incident). Completed questionnaires were used to assist in recall if necessary, and clarification was sought only if more detail about an incident was required. With the consent of the FP interviews were tape recorded to ensure that accurate records of the incidents were obtained.

Quantitative and qualitative data were summarized, and information obtained in the semistructured interviews was transcribed and analysed using the critical incident technique.[12,13] One investigator (E.M.) classified the critical incidents, and a second investigator (L.D.M.) reviewed the classification scheme.

Results

Of the 45 FPs contacted, 23 from 7 practice sites agreed to participate. The main reason given for not participating was lack of time. Three of the 23 did not complete the study; thus, the final sample comprised 20 FPs from 6 practice sites.

Over the 2-day data-collection period, the 20 FPs completed questionnaires for 269 patient encounters; 9 were excluded for protocol violations, resulting in a total of 260 patient encounters in the final analysis. Of these 260, 124 (48%) patients were perceived by their FP to have expressed or implied a demand for an anti-infective. Table 1 provides a summary of perceived patient demand stratified by patient sex and age and the suspected site of infection. Focus group FPs reported that they would be influenced by patient demand more likely near the end of the week or from patients they did not know; these variables were therefore included in Table 2.

Table 3 presents a summary of the decisions made in the 124 encounters in which patient demand was perceived. The FPs reported that perceived patient demand influenced their decision to prescribe an anti-infective "not at all" in 59 (48%) of the encounters, "slightly" in 39 (31%), "moderately" in 17 (14%), "quite a bit" in 6 (5%) and "extremely" in 2 (2%).

Interviews were conducted in person with 5 FPs and by telephone with the other 15 FPs. Fourteen interviews were tape recorded. In total 35 critical prescribing incidents were identified by 18 FPs; 2 FPs stated that they were never influenced by perceived patient demand. Each critical incident was evaluated and classified into 1 of 3 categories. The first category included incidents where, in the absence of clinical findings, the FP did not prescribe an anti-infective drug even though he or she perceived the patient's desire for one; 14 (40%) of the 35 critical prescribing incidents were placed in this category. In describing these incidents FPs focused on 2 common themes: establishing a good patient–physician relationship and taking the time to educate patients.

The second category included incidents where, in the absence of clinical findings, an anti-infective was prescribed because of perceived patient demand; 17 (49%) of the 35 incidents fit into this category. The third category included those for which the FP was uncertain about the clinical need for an anti-infective; 4 (11%) of the 35 incidents were categorized as uncertain, and an anti-infective was prescribed in all 4 cases.

The incidents in the second category were further categorized on the basis of the reason an unwarranted anti-

Table 1: Family physicians' perceptions of patient demand for anti-infective prescription, by patient characteristics

Patient characteristic	No. (and %) of patient encounters	Patient demand perceived; no. (and %) of encounters		
		Yes	No	Uncertain
Sex*				
Male	102 (40)	44 (43)	29 (28)	29 (28)
Female	155 (60)	79 (51)	41 (26)	35 (23)
Suspected site of infection				
Respiratory tract	196 (75)	94 (48)	50 (26)	52 (27)
Skin	17 (7)	7 (41)	8 (47)	2 (12)
Genitourinary tract	12 (5)	8 (67)	2 (17)	2 (17)
Other	35 (13)	15 (43)	11 (31)	9 (26)
Age, yr*				
≤ 18	113 (44)	45 (40)	37 (33)	31 (27)
19–39	73 (28)	38 (52)	19 (26)	16 (22)
40–64	55 (21)	33 (60)	12 (22)	10 (18)
≥ 65	16 (6)	7 (44)	1 (6)	8 (50)

*Data missing in 3 cases.

infective was prescribed. The various explanations provided by the FPs follow.

Four FPs reported that the patient expected a prescription for an anti-infective because one had been given in the past for a similar condition. In 3 cases an anti-infective was prescribed to accommodate the patients' social responsibilities (e.g., travelling outside of Canada), and in 2 cases the FP felt that the prescription was symbolic of a physician's role as a healer.

I felt that this fellow needed to feel better, and if he was on an antibiotic, even if it acted as a placebo and allowed him to feel better and to go back to work, I've saved the company money, I've saved him money and I don't think that I've done any harm.

Responsibility was transferred to the patient in 2 cases.

I assumed she wanted [an anti-infective] because she came in.

Two FPs felt that they lacked control over the situation; they felt that if their patients did not receive a prescription they would go to another physician. One FP felt pressure to be consistent; a man presented with the same symptoms as his wife, who had been given an anti-infective, and he expected a prescription as well. One female FP empathized with a female patient who was about the same age and also had a demanding career.

This is a patient who is under a fair amount of pressure and just couldn't afford down time. She is very tuned in and ... would use an antibiotic to secure her base so that she won't get worse.

One FP prescribed an anti-infective to avoid arguing with a domineering patient. Another wrote a prescription because of guilt over a previous prescribing error that had been picked up and corrected by a resident.

She really wanted an antibiotic again — the fact that I had misprescribed in the first place. I felt guilty and apologetic and so I ended up prescribing (when) I probably should have seen her first.

Interpretation

Patient demand was perceived in slightly less than half (48%) of the encounters with FPs in our study. This is in agreement with the findings of 2 recent studies; in one the reported prevalence of perceived patient demand was 56.3%,[18] and in the other it was 38.3%–58.9%.[19]

Table 2: Family physicians' perceptions of patient demand, by characteristics of patient encounters

Encounter characteristics	No. (and %) of patient encounters	Patient demand perceived; no. (and %) of encounters		
		Yes	No	Uncertain
Practice location				
Downtown	121 (47)	61 (50)	29 (24)	31 (26)
Suburb	134 (52)	62 (46)	41 (31)	31 (23)
Hospital	5 (2)	1 (20)	1 (20)	3 (60)
Day of appointment*				
Mon–Wed	173 (68)	88 (51)	40 (23)	45 (26)
Thurs–Sun	80 (32)	34 (42)	28 (35)	18 (22)
Patient status†				
Known to physician	219 (85)	101 (46)	62 (28)	56 (26)
Unknown to physician	40 (15)	22 (55)	9 (22)	9 (22)

*Data missing in 7 cases.
†Data missing in 1 case.

Table 3: Influence of perceived patient demand on physicians' decisions to prescribe an anti-infective drug

Perceived degree of influence	No. (and %) of patients whose demand was perceived					
	Needed drug *n = 51*		Did not need drug *n = 39*		Need uncertain *n = 34*	
	Received drug *n = 50*	Did not receive drug *n = 1*	Received drug *n = 3*	Did not receive drug *n = 36*	Received drug *n = 28*	Did not receive drug *n = 6*
Not at all	31 (62)	1 (100)	0	23 (64)	1 (4)	3 (50)
Slightly	14 (28)	0	1 (33)	10 (28)	11 (39)	3 (50)
Moderately	5 (10)	0	1 (33)	2 (6)	9 (32)	0
Quite a bit	0	0	0	0	6 (21)	0
Extremely	0	0	1 (33)	0	1 (4)	0
No response	0	0	0	1 (3)	0	0

FPs in our study reported that in almost 80% of the encounters where patient demand was perceived, their prescribing was not influenced at all or was influenced only slightly. This seems to contradict other findings that suggest that patient demand is particularly problematic.[6,10] There are several explanations for the apparent discrepancy. First, FPs in our study may have altered their behaviour because they knew they were being studied. Second, the limited influence of perceived patient demand on prescribing behaviour may have been due to the type of participants; many of the FPs were academically affiliated.

Nevertheless, when clinical need was uncertain, 82% of the patients seeking an anti-infective received one, and FPs reported that in over 50% of these cases they were influenced either "moderately" or "quite a bit" by the perceived demand. Several studies have reported that physician uncertainty is responsible for much overtreatment.[20–22]

When the reasons FPs gave for being influenced by patient demand were compared with those identified in the literature and by the focus group, only 2, those relating to symbolism and conflict avoidance, coincided. The 2 themes that dominated the focus group discussion — financial and time restraints, and convenience — were not discussed by FPs in the interviews. It is possible that when reasons are discussed in a general context, as they were in the focus group, classification remains broad; however, when the critical incidents were categorized in this study, more specific categories seemed appropriate. For instance, when FPs discussed patient demand in general, their comments echoed those in the literature and those cited by FPs in the focus group.

There were limitations of this study. The first is generalizability. Many of the participants were academically affiliated, and all belonged to group practices located near medical teaching centres in a metropolitan area. These factors may have increased their exposure to medical education and made them more aware of the problems associated with perceived patient demand. Also, it is unknown whether the FPs who agreed to participate differed from those who refused. The results of this study are also limited because it was not continued to the suggested cutoff for the critical incident technique (i.e., until the last 100 incidents collected revealed no new information).[13] Therefore, the results should be considered preliminary.

In conclusion, this was primarily a qualitative study of the influence of perceived patient demand on FPs' prescribing behaviour. The main value of this study lies in the identification of factors associated with perceived patient demand and in the determination that FPs are more susceptible to patient demand when the clinical situation is uncertain.

Competing interests: None declared.

References

1. Gorton TA, Cranford CO, Golden WE, Walls RC, Pawelak JE. Primary care physicians' response to dissemination of practice guidelines. *Arch Fam Med* 1995;4:135-42.
2. Schwartz RK, Soumerai SB, Avorn J. Physician motivations for nonscientific drug prescribing. *Soc Sci Med* 1989;28(6):577-82.
3. Hemminki E. Review of literature on the factors affecting drug prescribing. *Soc Sci Med* 1975;9:111-5.
4. Stimson GV. Doctor–patient interaction and some problems for prescribing. *J R Coll Gen Pract* 1976;26(1):88-96.
5. O'Hagan JJ. What influences our prescribing? Some non-pharmacological issues. *N Z Med J* 1984;97:331-2.
6. Stephenson MJ, Henry N, Norman GR. Factors influencing antibiotic use in acute respiratory tract infections in family practice. *Can Fam Physician* 1988; 34:2149-52.
7. Webb S, Lloyd M. Prescribing and referral in general practice: a study of patients' expectations and doctors' actions. *Br J Gen Pract* 1994;44:165-9.
8. Britten N. Patient demand for prescriptions: a view from the other side. *Fam Pract* 1994;11(1):62-6.
9. Virji A, Britten N. A study of the relationship between patients' attitudes and doctors' prescribing. *Fam Pract* 1991;8:314-9.
10. Bradley CP. Uncomfortable prescribing decisions: a critical incident study. *BMJ* 1992;304:294-6.
11. Hepler CD, Clyne KE, Donta ST. Rationales expressed by empiric antibiotic prescribers. *Am J Hosp Pharm* 1982;39:1647-55.
12. Flanagan J. The critical incident technique. *Psychol Bull* 1954;51:327-58.
13. Dunn WR, Hamilton DD. The critical incident technique — a brief guide. *Med Teach* 1986;8(3):207-15.
14. Williamson JA, Webb RK, Prior GL. Anaesthesia safety and the "critical incident" technique. *Aust Clin Rev* 1985;June(17):57-61.
15. Wright D, MacKenzie SJ, Buchan I, Cairns CS, Price LE. Critical incidents in the intensive therapy unit. *Lancet* 1991;338:676-8.
16. Altmaier EM, McGuinness G, Wood P, Ross RR, Bartley J, Smith W. Defining successful performance among pediatric residents. *Pediatrics* 1990;85:139-43.
17. Diamond MR, Kamien M, Sim MGB, Davis J. A critical incident study of general practice trainees in their basic general practice term. *Med J Aust* 1995; 162:321-4.
18. Britten N, Ukoumunne O. The influence of patients' expectations of receiving prescriptions on doctors' perceptions and the decision to prescribe. *BMJ* 1997;315:1506-10.
19. Cockburn J, Pit S. Prescribing behaviour in clinical practice: patients' expectations and doctors' perceptions of patients' expectations — a questionnaire study. *BMJ* 1997;315:520-3.
20. Leape L. Unnecessary surgery. *Health Serv Res* 1989;24:351-407.
21. Katz J. Why doctors don't disclose uncertainty. *Hastings Cent Rep* 1984;14 (1):35-44.
22. Eddy D, Billings J. The quality of medical evidence: implications for quality of care. *Health Aff* 1988;7(1):19- 32.

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