

A medical practice audit: Do patients request antibiotic treatment for common respiratory infections?

A medical practice self-audit performed without formal mandate and with the goal of personal growth can be rewarding and lead to insights and practice improvements. According to an audit conducted in 2010, patients visiting a community clinic very rarely questioned prescribing decisions made by physicians.

ABSTRACT: The medical practice audit is a recognized tool for quality-of-care improvement. With focused objectives, practice self-audits can contribute to both patient and practitioner improvement, if not enlightenment. A simplified medical practice audit completed in 2010 was based on the College of Family Physicians practice audit template. Data were gathered from 204 patients presenting with symptoms of respiratory infection at a community clinic in Surrey, BC. Patient requests for antibiotics were found to be relatively uncommon in the population studied, with only nine (4.4%) raising concerns when antibiotics were not prescribed. This and other studies indicate that self-audits can improve clinical practice by allowing both general and specialist physicians to assess aspects of the care they provide.

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Antibiotic overprescription is associated with adverse health care outcomes and has concerned researchers for many years.¹ While there is a general perception that antibiotic use exceeds actual need and that some of this use is initiated by patients, it is not clear how much patient requests drive actual prescriptions. The assumption is that general education for medical and lay populations will promote better antibiotic use and quality of care. In British Columbia, for example, the Do Bugs Need Drugs? program targets a general population in order to limit antibiotic requests and hence use.²

The medical practice audit is a powerful tool for altering clinical approaches and improving health care, and its implementation has a considerable history.^{3,4} It can be applied to both general practice and specialty care. Apart from determining the pattern of practice either retrospectively or prospectively, audit results can change practice and raise stimulating questions. Although most physicians have a general understanding of their own medical practice biases and

patient profile, quantitation of the latter is less exact and may occasionally surprise a physician. As Barber proposes, all human activities benefit from objective evaluation and self-criticisms.⁵

Practice audit

The design and outcome of a simple medical practice audit conducted in 2010 illustrates how such an approach might affect personal practice and provincial health programs. In this audit, five facets of prescribing activity were detailed according to the template⁶ recommended by the College of Family Physicians of Canada:

- I. Description of audit activity.
- II. Practice questions.
- III. Consider the information.
- IV. Consequent practice questions.
- V. Evaluations and reflections.

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Table 1. Countries of origin for immigrant patients in study cohort.

Africa	Asia	Europe	North America
Egypt	Afghanistan	Croatia	Mexico
Ethiopia	Bangladesh	Hungary	
Somalia	Cambodia	Poland	Oceania
South Africa	China	Romania	Fiji
Sudan	India	Serbia	
Uganda	Korea	Ukraine	South America
	Laos		Columbia
	Pakistan	Middle East	Peru
	Philippines	Iran	
	Singapore	Iraq	
	Sri Lanka	Lebanon	
	Taiwan	Syria	
	Thailand	Turkey	
	Vietnam		

I. Description of audit activity

A prospective audit was conducted for 204 consecutive patient visits to a single community practice in north Surrey, British Columbia, from 16 September to 6 November 2010. Ninety-five of the patients (46.6%) were children. The mean patient age was 25.7 years (age range 3 months to 77 years). More male than female patients were seen (116/204; 56.9%) and a high proportion of patients were immigrants (91/204; 44.6%). The majority of patient decision-makers, that is, adult patients and parents making decisions relating to a child’s care, were immigrants (151/204; 74.0%). Overall, parents were making decisions for children in 93 of 204 cases (45.6%); in 77 of these 93 cases (82.8%) the parents were immigrants. **Table 1** lists the countries of origin for all immigrant patients and guardians in this audit.

Observational data were acquired regarding whether patients or their guardians made requests for antibiotics during a visit in which a patient presented with a community-acquired respiratory infection. All patients had

either apparent upper or lower (or both) respiratory infections; complicating factors for some included asthma, otitis media, sinusitis, conjunctivitis, and gastroenteritis. **Table 2** details the breakdown of diagnoses for these patients.

During the study period, croup and bronchitis incidence were high. The British Columbia Centre for Disease Control reported for two similar time periods in 2010: for 1 September to 1 October 51% of viral isolates were possibly rhinoviruses and 1.4% were parainfluenza; for 3 October to 13 November 48% of isolates were rhinovirus-like, 2% were parainfluenza, and 1% were adenovirus.⁷ During similar time periods, BC Children’s Hospital virology section reported parainfluenza, respiratory syncytial virus, and adenovirus activity.⁷ Influenza activity was low.

II. Practice questions

The following practice questions were considered in this audit:

- Do patients request antibiotics directly and how frequently do they do so?

Table 2. Patient diagnoses at visit completion.

Upper and lower respiratory infection*	68
Upper respiratory only	33
Lower respiratory only	33
Upper and lower respiratory + asthma	14
Pharyngitis	13
Pneumonia + asthma	9
Pneumonia only	8
Lower respiratory + asthma	7
Upper and lower respiratory + otitis media	4
Sinusitis	3
Upper respiratory + otitis media	3
Upper respiratory + conjunctivitis	3
Upper and lower respiratory + pneumonia	2
Upper and lower respiratory + gastro	1
Lower respiratory + gastro	1
Upper and lower respiratory + asthma + pneumonia	1
Upper and lower respiratory + asthma + bronchitis	1

*Upper respiratory denotes mainly cold symptoms of viral origin. Lower respiratory denotes mainly laryngeal, bronchial, or bronchiolar infections of presumed viral origin but including possible bacterial bronchitis.

- Does the answer to the above facilitate the determination of the most likely strategic point for diminishing antibiotic use?

Patients were assessed in a standard fashion with an initial history taking as relevant to the presenting complaint. During the subsequent physical examination and/or in a summary of the visit, it was cogently explained to patients or guardians that viral infections do not typically respond to antibiotic treatment. A per-patient template was used to record whether the patient or guardian inquired in any fashion about antibiotic use either

Table 3. Antibiotics prescribed for patients in study.

Diagnosis	Penicillin	Erythromycin	Clarithromycin	Doxycycline	Amoxicillin	Sulfamethoxazole	Topical
Pharyngitis	8	—	—	—	—	—	—
Pneumonia	—	9	5	4	—	—	—
Bronchitis	—	3	5	4	—	1	—
Otitis media	—	—	3	—	4	—	—
Sinusitis	—	—	—	—	3	—	—
Conjunctivitis	—	—	—	—	—	—	2

during the initial greeting, during history taking, during the physical examination, or thereafter.

Table 3 shows the antibiotics prescribed for various diagnoses in 51 of 204 cases (25%). Prior to physical examination, antibiotics were mentioned or requested by 6 of 204 patients (2.9%); these were all adults, including one father asking about a child less than 1 year of age. During the physical examination, 9 of 204 patients (4.4%) inquired about antibiotics; again, all were adults, including a spouse asking about her husband and another patient asking about the use of antibiotics during an acute asthma episode because these had been provided previously under similar circumstances elsewhere. Nine of 204 patients (4.4%) raised concerns when antibiotics were not prescribed; one patient wanted to have an antibiotic on hand because of imminent travel and another asked about antibiotics because they had been used in similar circumstances (again asthma) previously. One patient (0.5% overall; 2.0% of patients who received an antibiotic prescription) questioned the type of antibiotic prescribed. One patient with mental health problems expressed hostility about the lack of an antibiotic prescription. Finally, only two patients were insistent about

antibiotic prescriptions—one was deemed to have an upper and lower viral respiratory infection, and the other had already been prescribed clarithromycin elsewhere for an existing pneumonia but wished for the antibiotic to be changed, even though no side effects were experienced.

III. Consider the information

This patient population included many immigrants, generally of low- and middle-income status. The countries of origin were diverse and included regions where antibiotics are less controlled and where they may be available on an over-the-counter basis. This cohort of patients had a high incidence of lower respiratory tract infections, and would have been expected to receive more antibiotic prescriptions than patients with predominantly upper respiratory infections, especially those of a viral nature. The patient population was one that generally approached antibiotic use with politeness and a genuine respect for the physician’s decision making.

A very small number of patients and guardians asked questions regarding antibiotic use, and even fewer were persistent or adamant about antibiotic prescriptions. Of the infrequent queries, some were inspired by prior antibiotic use in similar circum-

stances. Many of the questions were justifiable in the particular contexts and were advanced with due concern rather than blind perseverance.

IV. Consequent practice decisions

A concise and relevant discussion of antibiotic use during the physical examination and at the conclusion of the patient visit appeared to satisfy patients. Although patient demographics might lead one to conclude that patient understanding of antibiotic use would be marginal, the patients accepted the physician’s prescribing decisions well, suggesting that physician decision making is most likely to influence appropriate antibiotic use.

V. Evaluations and reflections

Patients in this cohort generally accepted the physician’s decisions about antibiotic use. Augmenting discussion during a clinic visit appears unlikely to reduce antibiotic use. Instead, the focus should continue to be on physicians and the need to accurately prescribe antibiotics under given circumstances.

Further research might determine if similar patterns of patient behavior exist in more affluent, non-immigrant patient populations.

Conclusions

This audit yielded evidence of less patient-related pressure to prescribe antibiotics than expected—good news given that increased antibiotic use has been associated with increased drug resistance.⁸ Interventions for limiting antibiotic use must be multifaceted. Both personal audits and comparison with general standards are needed to reduce the number of antibiotic prescriptions and hence resistance.⁹ Whereas general population education may help, ultimately the prescribing doctor determines antibiotic use,

especially in a health care system that requires formal antibiotic prescriptions. Self-audit is a recognized technique for altering prescription patterns.¹⁰

Historically, the medical practice audit has been one of the most common ways to improve quality of care.^{11,12} Audits can take many forms. As Williamson summarizes, “medical audit may be seen as market research, epidemiological research, administrative research, clinical research, or snooping!”¹³ Self-audit may initially appear to be a difficult process because of its formality and possible complexity; a common excuse for abstaining from audit is time constraint.¹⁴ There can also be a concern about a punitive outcome, especially when an audit involves external participants. However, a self-audit performed without formal mandate and with the goal of personal growth can be rewarding and lead to insights and practice improvements. Greater self-knowledge can emerge from having more information about one’s working methods and the outcome of one’s actions.¹⁵

Although several variables affect the impact of self-analysis on individual physicians, such self-assessment can lead to improved structure of care, process of care, and health care outcomes.¹⁶⁻¹⁸ A goal or question is raised, an approach is determined, and the data collection and analysis proceed. The self-audit is not an experiment *per se* and does not subject patients to the unknown or unpredictable; the process is patient-neutral in its conduct. Like the audit template of the College of Family Physicians of Canada⁶ described earlier, the audit template of the Royal College of Physicians and Surgeons of Canada¹⁹ provides a structure for assessment:

I. Question or issue created; assess resources.

II. Acquire information and learning outcomes.

III. Evaluate knowledge, skills, and performance.

IV. Conclusions and feedback.

V. Learning plan and unperceived needs.

earned for maintenance of competence and certification programs. Topics abound. General physicians might consider the following topics for self-audit:

- Compliance with clinical practice guidelines.

Greater self-knowledge can emerge from having more information about one’s working methods and the outcome of one’s actions.

The technology available for charting and database creation can enhance self-audit processes, and the clinical record can be key.²⁰ Physicians may also gauge their practice against published standards or identify other problems or further relevant issues. Physicians may ultimately take action and implement change on the basis of the self-audit outcome. As familiarity with the process is acquired, attitudes can change in terms of interest, confidence, and the utility of the audit.¹⁷ In the flow of these processes, the implementation of change—“the relationship between need and action”—was found to be weak.²¹ Therefore, the completion of the “quality loop” is vital.²² As McWhinney paraphrases, “good care must not only be given, but must be seen to be given.”¹⁵

With the recognition that self-audit can improve clinical practice, both Canadian medical training colleges have ascribed value to such activities, and indeed credits can be

- Comprehensiveness of chronic care management.
- Frequency of adverse reactions to new pharmacological agents.
- Medical treatment and outcomes for patients with insomnia.
- Patterns of antiplatelet therapy.
- Practice profiles of narcotic use and narcotic substitutes.

As well as treatment compliance, specialist physicians might consider the following topics for self-audit:

- Emergency medicine: expediency of care.
- General pediatrics: antibiotics for respiratory infections.
- Pathology/laboratory medicine: quality assurance program outcomes.
- Psychiatry: polypharmacy and adverse events.
- Surgery: postoperative infections.

A constructive audit is one where medical colleagues can agree largely that they have a productive system for the invigilation of their own work.²³ To this end, would it not serve medical

practitioners to have their colleges develop and disseminate some exemplary templates for such a mode of continuing medical education? For example, surgeons could devise an audit structure that could be one of many that are provided to the surgeons in general for the purposes of self-audit. That template could then be chosen by individuals, rather than having each physician create one anew.

Self-assessment can lead to improved structure of care, process of care, and health care outcomes.

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