



World Gastroenterology Organisation Practice Guidelines:

Strategies for reducing the prevalence of antimicrobial resistance

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1 Introduction

Suggestions for strategies that may reduce the emergence of resistance of pathogenic microorganisms to antimicrobial agents focus in part on issues specific to gastroenterological practice; in large part, however, they are generic suggestions appropriate for the practice of any field of medicine. The microbiologic ecology does not allow for clinical divisions in medicine. Indeed, because the gut is by far the largest repository of microorganisms in humans, it also serves as the largest reservoir of antimicrobial resistance. Because almost all orally administered antimicrobial agents are only incompletely absorbed from the upper gut, drug concentrations in the colon are usually high. This in turn presents a strong selective pressure for antimicrobial-resistant strains in the gut lumen. Many parenterally administered agents also achieve high concentrations in the gut lumen because of active excretion into the gut, either via the bile or by other excretion mechanisms from plasma.

The suggestions that follow are based on the assumption that selective pressure is the main driving force behind the emergence of resistance. Many, if not most, of the suggestions that follow have not been evaluated in controlled experiments in individuals or communities. Instead, they are based on our knowledge of the development of resistance. Because resistance is difficult to reverse once established, prudence is the key. The analogy is with the debate over global warming: awaiting definitive evidence that increased carbon dioxide production results in global

warming may preclude the possibility of averting the disaster that may await us. The same applies to antimicrobial resistance: awaiting definitive evidence that an intervention strategy will obviate the development of resistance may well make that intervention strategy useless.

All suggestions stem from the assumption that more prudent use of antimicrobials will reduce the development and magnitude of the problem of antimicrobial resistance as it affects the clinical practice of gastroenterology.

2 Developing clinical practice guidelines

Practice guidelines for common infectious gastroenterologic conditions in which antimicrobials are required helps set a standard for judging good practice. These guidelines should cover both therapeutic and prophylactic use of antimicrobials. Such guidelines may differ depending on the locale and the resources that are available. Many regional gastroenterology societies undoubtedly already have such guidelines. A world organization, such as the World Gastroenterology Organisation (WGO), can help regions that do not have the resources to develop such guidelines independently. Such guidelines should be updated on a regular basis.

3 Auditing actual practice

Such guidelines will only be of maximum benefit if practice is audited. Medical audits in many countries have fallen into ill repute because they are used solely as a means of controlling costs, often to the detriment of the patient. In this case, the intent of the audit would be to ensure that optimal care is provided.

Physicians as a group value their autonomy, and are often resentful of others assessing or criticizing the appropriateness of their actions. Physicians often tend to view individual patients as unique, and may feel that guidelines are never specific enough to be able to deal with the unique patient in front of them.

For these reasons, audits are best done by other groups of physicians in the same specialty — i.e., auditing should be done by peers and other appropriate professionals (pharmacists, for instance). Auditing should not be punitive, but supportive. Knowing that prescribing will be audited will in itself serve as a brake on more egregious practices. It will force practice to regress to the mean as established by the guidelines. Where an outlying practice is justified, it can be explained and justified during the audit.

Audits are equally appropriate in rich and poor countries. They are most easily done in hospitals, where physicians' behavior is easily checked and where there are mechanisms in place to form committees to evaluate practice. Forming audit committees is not so easily done in outpatient practice — especially in outpatient private practice. Many physicians will view them as a waste of time, especially if they detract from private-practice income. Where possible, they can be mandated; in other settings (such as private practice) the value of auditing has to be made apparent to the medical staff.

4 Appropriate advertising and promotion

Legal advertising and promotion is not synonymous with appropriate advertising and promotion. Pharmaceutical companies promote products in order to maximize profits, rather than to maximize the prudent use of drugs. There is considerable evidence that such promotions are effective; companies would not spend such a large proportion of their budgets on promotion if this were not the case. Inappropriate promotion of pharmaceuticals is especially apparent in developing countries, where there are few if any controls on the promotional content provided by pharmaceutical companies.

Physicians and medical societies are in a somewhat compromised position with regard to pharmaceutical company promotion. As is evident from any major medical meeting, much of the activity is supported by pharmaceutical company funding. This is true of other educational activities as well.

It will not be easy to change this situation, but medical societies and physicians can exercise some leverage. They can ask to review advertising and promotions at meetings and can ask members of their society to ensure that such materials are consistent with published guidelines. Such an effort would be immensely controversial, but the continuing increase in resistant organisms may warrant such initiatives.

There are also other constructive ways of engaging with pharmaceutical companies on the issue of the appropriate promotion of antimicrobial agents. Lobbying for the extension of patent rights for companies that agree to limit their promotions to approved guidelines (in contrast to approved uses) would be one such method.

5 Patient education

Physicians often cite patients' demands as the reason for inappropriate prescription of antimicrobials (interestingly enough, patients often cite physician pressure as being the reason they take antimicrobials). In either case, educational efforts aimed at patients regarding appropriate antimicrobial use are warranted.

6 Requiring prescriptions for antimicrobials

In most of the world, prescriptions are not required for purchasing antimicrobials. Antimicrobials are dispensed either by untrained practitioners, or are purchased and self-administered without any medical advice. Gastrointestinal symptoms are a common reason for the use of antimicrobials without prescription.

Many entrenched interests are opposed to limiting the use of antimicrobial agents to patients with prescriptions from licensed medical practitioners. In addition, in many developing countries there may be too few medical practitioners to provide adequate access for all persons to prescriptions.

Nonetheless, when the major motive behind prescribing or selling drugs is profit, it seems difficult ever to achieve prudent use. Medical societies need to support efforts to limit the inappropriate use of antimicrobials by unqualified pharmacies.

7 Research

Compliance is a major issue with appropriate use. The longer and more complex a course of therapy is, the lower the likelihood of compliance. The antimicrobial regimens used in gastroenterology can be extremely complex for patients (the regimen for *Helicobacter pylori* being an example). Research efforts aimed at shortening and simplifying courses of therapy are in order, as are efforts to identify methods of treating infections other than with antimicrobials.

8 References

Printed publications

- Mainous AG 3rd, Hueston WJ, Love MM, Evans ME, Finger R. An evaluation of statewide strategies to reduce antibiotic overuse. *Fam Med* 2000;32:22–9 (PMID: 10645510).
- Putman M, Van Veen HW, Degener JE, Konings WN. Antibiotic resistance: era of the multidrug pump. *Mol Microbiol* 2000;36:772–3 (PMID: 10844664).
- Twomey C. Antibiotic resistance: an alarming health care issue. *AORN J* 2000;72:64–6, 68–80.
- Wenzel RP, Edmond MB. Managing antibiotic resistance. *N Engl J Med* 2000;343:1961–3 (PMID: 11136269).

Web sites

- Centers for Disease Control and Prevention (CDC): <http://www.cdc.gov/>
- Antibiotic resistance web page: <http://www.cdc.gov/drugresistance/community/>
- National Guideline Clearing House: <http://www.guidelines.gov/> (type “antibiotic resistance” into the search box, especially if the focus is on specific diseases).
- Infectious Diseases Society of America (IDSA): <http://www.idsociety.org/>

9 Queries and feedback

The Practice Guidelines Committee welcomes any comments and queries that readers may have. Do you feel we have neglected some aspects of the topic? Do you think that some procedures are associated with extra risk? Tell us about your own experience. You are welcome to click on the link below and let us know your views.

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