Overview: The Five Factors to Consider

Antibiotics comprise the single largest subset of medications on hospital formularies and constitute the group of drugs that undergo periodic revision. Various antibiotics might be added to hospital formularies while others are kept or deleted.

Because of the number and complexity of antimicrobial agents that are available for selection, it is not surprising that P&T committees have difficulty grappling with the principles for devising rational and cost-effective antibiotic formularies. Decisions regarding inclusion or exclusion on a hospital’s formulary should not be based solely on cost considerations or on outcomes research. The proper evaluation of an antibiotic’s potential usefulness for inclusion on a formulary rests upon several considerations that vary in their importance, according to the drug’s class and use.

The main role of P&T committees is to maintain a limited formulary that meets the needs of clinicians and their patients and that is relatively more cost-effective compared with alternative therapies, not simply less expensive than other drugs within the class. Antibiotic formularies should be limited or closed, with an option to obtain nonformulary drugs by special written request, as is sometimes required under unusual circumstances.

Representatives from each class of antibiotics need not be on the formulary. The guiding principle should be appropriate but restricted choices that meet the clinical needs of the hospital. For example, with parenteral cephalosporins, most institutions have one first-generation cephalosporin, no second-generation cephalosporins, one third-generation cephalosporin, and one fourth-generation cephalosporin. This distribution of antibiotics within a class provides optimal cost-effective coverage of infections for which parenteral cephalosporins would be selected.

The addition of new antimicrobial agents to the formulary, simply because they have just become available, makes little sense. If an antibiotic has activity or a special use for which there are no good alternatives, such drugs should be considered for inclusion on the formulary.

Thus, newness does not constitute a rationale for inclusion. Similarly, many old drugs can be eliminated from formularies, but some older drugs have important advantages in terms of experience, safety, a potential for low resistance, and low cost. Clearly, hospital formularies should contain both new and old antimicrobials that meet the needs of the hospital’s infectious disease profile.1,2

Ordinarily, when evaluating antimicrobials for potential inclusion on a formulary, P&T committee members should consider five factors, namely the agent’s (1) microbiologic activity, (2) the pharmacokinetic and pharmacodynamic profiles, (3) resistance potential, (4) safety and side-effect profiles, and (5) cost to the institution. These factors achieve different degrees of importance when antibiotics are being considered for various potential uses. If an antibiotic is to be used primarily to treat meningitis, for example, pharmacokinetic considerations would merit more attention than other factors.

P&T committee members must be careful not to include medications on the formulary for one indication (e.g., to treat infection X) that would subsequently be used mainly for another indication (e.g., to treat infection Y). Drug companies use this strategy to gain acceptance on hospital formularies for one indication while they promote the drug for another indication, for which other better or less expensive alternatives might exist.

In today’s era of cost containment, an additional factor bears important consideration for P&T committees—the availability of an antibiotic in both intravenous (IV) and oral forms. As a general principle, antibiotics having only an oral formulation have limited application for hospital formularies.

Oral drugs are used primarily in the ambulatory setting and may be used, if appropriate, in IV-to-oral switch programs. Antibiotics with both IV and oral forms have potential advantages for inclusion on formularies if the oral form has a high degree of bioavailability and meets other criteria (e.g., low resistance potential and a good side-effect profile). Some antibiotics that appear to be relatively expensive orally are cost-effective when compared with IV therapy using the same agent. What might seem to be a relatively expensive oral agent might be cost-effective in relation to the decrease in IV line infections, which can occur when the parenteral counterpart is used. Furthermore, IV-to-oral switch programs in hospitals greatly reduce the need for costly central or peripheral IV central catheter (PICC) insertions and removals.

These are all additional cost factors in favor of what appears to be a relatively expensive oral agent. Most importantly, in a managed health care environment, early discharge from the hospital is a key issue. IV-to-oral switch programs permit patients to leave the hospital earlier, and—regardless of the cost of the oral agent (which might appear to be relatively expensive)—decreasing the number of hospital days makes such agents cost-effective.

This special five-part series discusses the five factors that P&T committees should keep in mind when deciding whether or not to include antimicrobial agents on a restricted or controlled hospital formulary.3-5 Small institutions may have to modify this approval process to fit their needs.

REFERENCES


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