

**SEPARATING THE WHEAT FROM THE CHAFF:
IDENTIFYING FALLACIES IN
PHARMACEUTICAL PROMOTION**

ALLEN F. SHAUGHNESSY, PharmD, DAVID C. SLAWSON, MD, JOSHUA H. BENNETT, MD

Reprinted from **JOURNAL OF GENERAL INTERNAL MEDICINE**,
Published by HANLEY & BELFUS, INC., Philadelphia, PA © 1994

PERSPECTIVES

Separating the Wheat from the Chaff:

Identifying Fallacies in Pharmaceutical Promotion

ALLEN F. SHAUGHNESSY, PharmD, DAVID C. SLAWSON, MD,
JOSHUA H. BENNETT, MD

Promoting drugs to doctors these days is much like selling soap to customers. It's all in the marketing.

*Wall Street Journal*¹

ADVERTISING—whether it is for pharmaceuticals, automobiles, or breakfast cereals—is designed to either *inform, remind, or persuade* the target audience about a product.² The marketing of drugs, though, is different from that of other types of goods and services, in that the target of the advertising efforts of pharmaceuticals is not the final purchaser of the product. In other words, a select group—physicians—controls the consumption for millions of others—their patients. This is the only industry (except perhaps our government) in which the buying decisions are not made by the ones holding the purse strings.

Pointing to this as well as many other reasons, many editorialists and letter writers have advocated the position that pharmaceutical promotion has no role in medicine, and that promotion efforts should be eliminated or sharply curtailed. Opponents of this point of view vehemently disagree, insulted that this approach calls into question their ability to distinguish when they are being “sold.”

In this article we take an approach that goes right down the middle of this argument. Assuming that pharmaceutical promotion is here to stay, the goal should be to make the targets of such efforts “informed consumers.” We approach this goal by presenting some of these techniques of influence in terms of the “appeals” that are made and then offering some ways in which we can prepare ourselves to separate the useful information from the useless misinformation that frequently accompanies it.

CLAIMS, GIMMICKS, AND APPEALS

I came into this industry when marketing consisted of giving away golf balls. It's almost unbelievable how marketing has changed; it's now almost as scientific as anything we do.¹

Gerald Leubach, PhD
Former President, Pfizer Pharmaceuticals

Advertising, in general, is tightly regulated. The Federal Trade Commission does not allow advertising of any product that is false or misleading. The Food and Drug Administration (FDA) has further regulatory control over the advertising of pharmaceuticals, requiring all claims of safety and effectiveness to be supported by product labeling (i.e., the package insert).

It would be naive to think, however, that advertising could or should be limited to strictly information and rational appeals. Information, by itself, almost never changes a person's attitudes.³ Advertising, on the other hand, not only provides information, but also “attempts to persuade us by appealing to our emotions (our hopes, fears, dreams), to the vulnerable spots in our egos (our desire for status and recognition), and by applying pressure to the tender areas of our psyches.”⁴

Drug promotion is no different. What is different, though, is that the target audience is, or at least its members perceive themselves to be, more rational and critical in their thought processes. As a result, drug marketing has evolved into a process that provides information intricately combined with logical and emotional appeals, slogans, wishful thinking, behavior modification techniques, and gimmicks.^{1, 5, 6}

Consider this claim that might occur in a drug detail:

Dr. Smith, I wish you'd give my drugs a try. Look at this study—it shows that it was effective against 98% of all the bacteria that cause sinusitis.

The first part of this appeal is a statement of a presumed fact: “My drug is effective against 98% of all causes of sinusitis.” The unstated reasoning process that all of us blaze through is, “Since this drug is 98% effective, few if any other agents will be more effective in the treatment of sinusitis.” The resulting conclusion is,

Received from the Harrisburg Hospital Family Practice Residency Program, Harrisburg, Pennsylvania. Dr. Slawson is currently at the University of Virginia, Charlottesville, Virginia.

Address correspondence and reprint requests to Dr. Shaughnessy: Harrisburg Hospital Family Practice Residency Program, Harrisburg Hospital, 205 South Front Street, P.O. Box 8700, Harrisburg, PA 17105-8700.

"This is the best drug for sinusitis, and therefore he's right, I should prescribe this for my patients."

Appeals such as this one are presented every day by pharmaceutical representatives in physicians' offices. We listen to them because we want to make sure that the drugs we prescribe are best for our patients. To convince us of their point of view, pharmaceutical representatives present appeals that may be either rational or flawed. Rational arguments might include evidence showing that their drug is safer, more effective, easier to take, less expensive, or better tasting. Nonrational—"flawed"—appeals, instead, present detours, dead ends, or roadblocks on our route to the "truth."

Arguments, or appeals, must have three components to be true. First, all relevant information must be considered; that is, nothing should be left out. Second, the facts not only must be true but also must be applicable. Last, a sound reasoning process should connect these true and applicable facts to the conclusion. If any of the conditions is not met, a nonrational appeal, or "fallacy of logic" has been presented and the conclusion (i.e., "this is the best treatment for my patients") may be invalid.

FALLACIES OF LOGIC

If we are to take a critical attitude toward information presented to us, we must also understand the difference between evidence and other devices that are sometimes used to make us believe the things people want us to believe.⁷

Experts in critical thinking currently list about 130 fallacies. Fallacies have catchy descriptive names, often expressed in Latin. The names are not important; the importance is in recognizing the conscious or unconscious use of these fallacies in drug promotion efforts. Some are so blatant and so frequently used that their use should be highlighted here. We have illustrated several commonly used fallacies with examples; other examples may come to mind as well.

Appeal to Authority (*Argumentum ad Verecundiam*)

I just talked with Dr. Jones, Chairman of General Hospital's Pharmacy and Therapeutics Committee. He says that he uses our drugs in almost all of his patients, and he has had great success. Won't you give it a try?

None of us can know everything. We constantly rely on authorities to provide us with information. Many times we have to rely on the opinion of someone without the opportunity to evaluate all the evidence ourselves.

The first requirement of an expert is that the topic must be in the field in which he or she is an expert. In our example, Dr. Jones' credentials as chairman of the therapeutics committee do not necessarily make him an

expert at anything. This is not to say, however, that he is not to be trusted. Dr. Jones may have convincing evidence that a certain course of treatment is better even when discussing an area that does not fall within his realm of expertise. The fallacy occurs in accepting his opinion alone without considering the evidence.

The second requirement of an expert is that he or she must be free of sources of bias. A common approach in drug marketing is to pay a local expert (termed an "opinion former")⁸ to speak to nonexperts about a drug. It is difficult to imagine that this speaker has not been influenced, *consciously or not*, by the sponsor. To some extent this influence and its effect have been documented.^{9, 10}

How do we combat the use of this appeal? The first step is to recognize when the evidence presented to support the claim is the expert's opinion and not necessarily factual information derived from clinical studies. The next step is to verify the expertise to which the appeal is being made. A good speaking style, a thick curriculum vitae, and an academic appointment do not necessarily confer expert status. In most situations, it is probably best to try to ignore the glittering reputations of experts and listen to what they have to say, being especially careful when phrases begin with, "What I like to do is . . .," "In my experience . . .," or "At my hospital we . . ." These statements, without further support, deserve careful questioning.

The Bandwagon Effect (*Argumentum ad Populum*)

The bandwagon effect, also called appeal to popularity, is a variation on the appeal to authority. In this case the "authority" is not a single person or an institution. The authority in this case is popularity. Appeal to popularity is frequently used in drug promotion. In an advertising campaign aimed at primary care practitioners, for example, the makers of an antidepressant boasted of how many psychiatrists prescribe their drug. We are often quick to jump on the bandwagon when we are afraid of looking as though we're not as up-to-date as our colleagues.

Note that the conclusion drawn from an *argumentum ad populum* may not necessarily be false. There are frequently good reasons why a medication is widely prescribed. It is using the *popularity* of the idea as a premise for the conclusion that is wrong. This mental shortcut of appealing to the masses is often easier than evaluating the reasons *why* the conclusion is so widely embraced.

Red Herring (*Non Sequitur*)

Legend has it that a red herring was used when dogs were being trained to follow a criminal's scent. The fish was dragged over the scent of the "criminal" and the

dogs were then taught to ignore this fresher, perhaps more interesting, scent and stay with the old scent. The red herring fallacy does the same thing: it presents facts that, although interesting, are not related to the conclusion.

Several years ago, an advertisement stated that cimetidine "reduces potential risks of prolonged acid suppression, reduces potential for acetaminophen toxicity, and [has a] lower risk of hepatotoxicity than ranitidine." On the surface, cimetidine appears to be safer than ranitidine. On further analysis, the facts, although perhaps true, have little bearing on the clinical decision to use one agent over the other. The first claim states that cimetidine doesn't decrease gastric acid secretion for as long as does ranitidine, and this shorter duration of action is somehow better. However, the clinical detriment to prolonged acid suppression has not been demonstrated. Though cimetidine theoretically may decrease the metabolism of acetaminophen to toxic agents, this action is of little practical use since an overdose of acetaminophen occurring in an individual already taking either cimetidine or ranitidine is extremely small. The third claim of lower hepatotoxicity is also irrelevant, since the risk with either agent is extremely small.

In all three appeals in this argument, the facts may be true but are irrelevant. This promotional campaign incurred the wrath of the FDA's Division of Drug Advertising and Labeling, but only after the claims were brought to the FDA's attention by the maker of ranitidine.¹¹

Red herring appeals usually occur when little difference exists among the available choices of therapy. This appeal preys upon our tendency toward wishful thinking.

Appeal to Pity (*Argumentum ad Misericordiam*)

You know, Doctor, this drug just isn't doing well in my territory. Even though I'm out there working hard, my sales just don't show it. Couldn't you help me a little by just trying my drug on a few patients?

"Pity melts the mind," wrote the poet Dryden. It is easy for the pharmaceutical representative to push the right button to flip us from logical thinker to sympathetic listener. Carefully intermingled with other facts, an appeal to pity can be overlooked and make its way into our decision process without our realizing it.

The above example is a rather blatant appeal to pity, but there are other, less obvious approaches. Occasionally advertisements imply that a brand-name product should be specified over the generic so that money generated by the brand-name manufacturers can be used to discover new and better drugs. Other approaches suggest that the prescriber should take pity on the patient and prescribe a particular medication, ignoring the fact that the drug may offer little or no benefit.

Appeal to Curiosity

The appeal to curiosity attempts to pique our interest by tapping our innate inquisitiveness. Similar to the red herring fallacy, the appeal to curiosity entails presenting irrelevant facts in an interesting way and usually involves displays or demonstrations. We may be encouraged to hold and feel a tablet with an interesting shape or imprint, or we may be given a small taste of a product. The appeal is similar to test-driving a car; the feel, smell, and look of a new car frequently overwhelm the otherwise objective buyer. Clever demonstrations point out unique but often irrelevant characteristics of one drug over another in an attempt to captivate the mind.

Many other fallacies are used in drug promotion. We have attempted to identify and explain only the most significant and commonly used logical missteps. Further information about these and other fallacies can be found in texts on critical thinking.^{4, 12}

OTHER TECHNIQUES OF DRUG PROMOTION

Nonrational appeals are not the only way to grab and hold our attention. Advertising is evolving from the art of developing catchy phrases to a science that uses proven persuasive techniques. In addition to the intellectual appeals, advertising can include sensory, social, and ego appeals. While some of these techniques have been formally studied, the use of others is supported by "clinical experience"—i.e., they work.

Food

Food, whether in the form of a meal at an elegant restaurant or just a box of pastry brought to the office, is the most commonly used technique to derail the judgment aspect of decision making. A fine meal, in addition to being a gift (discussed below), increases the receptivity of an audience to a message.^{13, 14} A study of persuasive messages has shown that one is more likely to accept a new idea while eating.¹⁴

The Testimonial

The company people always tell us that these drugs work, but, I gotta tell you, Doctor, I really was convinced when my father started taking it.

The testimonial is a very persuasive form of communication. It takes an abstract idea and personalizes it, allowing us to react on a concrete level. Drug studies help us with decisions, but they tend to have been conducted "out there" somewhere and may not seem to apply within our own realm.

In addition to the pharmaceutical representative's providing the testimonial, solicited testimonials may also be used: "Have you had success with (my drug)?" It is difficult to argue with our own success even if, in terms

of study design, the sample size is small, the study unblinded, and the outcome difficult to measure.

Relationship Building

The relationship between pharmaceutical representative and prescriber is all-important to increasing sales. Representatives do whatever it takes to increase their "face time," because developing a relationship is frequently the first step in developing credibility. In the initial training of a pharmaceutical representative, more emphasis is placed on developing general verbal communication skills and specific communication with physicians than is placed on product knowledge.⁶

Gifts

One of the most frequent and easiest ways to create a relationship is by the giving of gifts. Recent guidelines¹⁵⁻¹⁷ have diminished the allowable size of gifts but not the frequency with which they are given. Chren and colleagues¹³ have elegantly outlined the concept that the acceptance of a gift of any size establishes a relationship with attendant obligations. Whether the gift is something with a high intrinsic value, such as a book or a stethoscope, or something of low cost, such as the ubiquitous pens, notepads, and gadgets,¹⁸ we are culturally programmed to give a "gift" in return. Our response to this obligation is generally to listen to the message that invariably accompanies the gift.

It may be likely, though, that we not only listen but also process the information, while unconsciously attaching the emotion of indebtedness to the message. This is the goal of advertising, as discussed earlier—to achieve an emotional response. Although we may not act on this feeling, the subconscious tension created by the gift giving—pitting our altruistic concern for our patients versus innate self-interest—serves to cement the message into our minds.

Active Learning

Active learning involves the learner in the process of discovering new ideas. Information is usually better retained if the learner is actively involved, rather than passively listening such as in a lecture.³ Pharmaceutical representatives will attempt to provide active learning by asking questions ("Doctor, what is your approach to the treatment of hypertension?"). In this process, desirable attitudes can be reinforced and those less acceptable (to the representative) can be specifically targeted for change.¹⁹

Reinforcement and Reminders

All of the techniques mentioned so far have been designed to first change our minds and then change our prescribing habits. The job is not over, though, once this

goal has been met. The next phase is to make this change permanent.

Repetition of a message aids in learning as well as in reinforcing what has been learned.²⁰ Continuous processing by our brains of a drug name can be encouraged by plastering this name all over our work spaces via pens, paper pads, and other trinkets. Advertisements catch our eyes as we page through a journal looking for an article, and a drug name is again processed, keeping it in the foreground of memory. Pharmaceutical representatives make frequent calls to physicians already prescribing their drugs to maintain this prescribing habit.

Continuous repetition can bore the message into our minds without our realizing how it was placed there. For this reason we have not used brand names in our examples so that we do not promote medications and provide free pharmaceutical advertisement while using them to illustrate our point. After all, it is possible that readers may forget our message and be left only with the brand names embedded in their memories.

Creating and Relieving "Cognitive Dissonance"

Uncertainty accompanies every decision we make. Cognitive dissonance is the discomfort that causes us to ask ourselves, "Did I make the right decision?" Advertising efforts can serve to create or relieve this cognitive dissonance. For example, the introduction of a new agent similar to existing drugs, the so-called "me-too" drug, may produce cognitive dissonance in prescribers who begin prescribing the new medication. The decision to change to the new agent requires a conscious departure from existing, perhaps comfortable prescribing habits. Marketing efforts are thus aimed at the new prescriber with the message that it's okay to use the latest agent ("Oh yes, many doctors I call on are prescribing my drug") to help to relieve uncertainty about a new drug.

NOW WHAT?

The title of this article—"Separating the Wheat from the Chaff"—implies we can obtain useful information from the pharmaceutical representative while ignoring the emotional appeals, puffery, and hyperbole. However, the ability to *identify* nonrational appeals does not ensure the rationality of our behavior.²¹ In other words, *knowing* what is or isn't logical and *acting* logically are two different things entirely.

Though the advertising community is firmly convinced of the value of the emotional appeal, this idea is largely rejected by its victims. The common belief is that we can receive gifts, be fed and entertained, listen to persuasive messages, read advertisements, and attend symposia without being influenced. A letter to the editor on the subject illustrates this thought: "To believe and avow that we are influenced by as little as a 'non-too-

sturdy medical bag' and a 'dinner at Anthony's Pier 4' presupposes a lack of judgment on our part."²² The key word in this statement is "judgment"—the idea that we can overrule a visceral response with our intellectual might. Individuals unaware of advertising, or those who believe that they are not influenced, are most vulnerable.¹

Can we separate the wheat from the chaff? Can we, once we have identified a nonrational appeal, turn off that part of our minds that is ready to absorb the information? Advertising theory holds that advertising works exactly because we *don't* pay much attention to it; that without our noticing, the message is assimilated and stored, ready to be used at the appropriate time.^{1,23} Many, however, insist that with proper training one can do this. We have presented the concept of logical fallacies with this aim in mind.

The blame for the use of fallacies of logic does not lie solely with the pharmaceutical industry. It is very easy to be lulled into lazy thinking. To obtain the information desired without succumbing to the other tactics requires that a somewhat offensive posture be taken regarding interactions with drug promotional activities. Advertisements, pharmaceutical representatives, and other promotional activities may not have to be avoided or shunned. Instead, an *active*, rather than *passive* approach must be taken. We must guard against extrapolating from disease-oriented evidence—blood or tissue levels, in-vitro effectiveness, and so on—to patient-oriented evidence.²⁴

Put your pharmaceutical representatives to work for you. Use them to obtain hard facts about their drugs, as well as to obtain relatively obscure information from their drug information departments. Give them feedback on their presentations to improve future exchanges. Advertisements can be skeptically read and the evidence critically evaluated. Speakers at continuing medical education conferences can be questioned when their presentations seem to stray from scientifically derived information toward the anecdotal or biased.

Outside of encounters with pharmaceutical representatives, many less biased sources can be used to support or refute the claims made. Drug bulletins (e.g., *The Medical Letter*) provide useful, balanced overviews. Critical appraisal techniques can be used to evaluate the medical literature.²⁵ Colleagues can collectively evaluate new information at group practice "P&T" (pharmacy and therapeutics) meetings and arrive at practice policies that serve to guide their use of drugs.²⁶

We cannot look to the FDA for protection from misleading advertising. Though they have jurisdiction, the FDA does not have time to review or approve all promotional materials before they are used by drug manufacturers.²⁷ And there is almost no way that the agency can prevent a pharmaceutical representative from exaggerating a claim. The current Commissioner of the FDA has acknowledged that an "... enormous potential

exists for misleading advertisements to reach the physician and influence prescribing decisions."²⁷

We must accept the reality that all of us respond to advertising in a manner beneficial to the advertiser. No one is immune to this manipulation. Those who do not acknowledge this reality are the most likely to be influenced because their defenses are down. The much-maligned pharmaceutical industry methods of promotion can provide useful and accurate information, but it must be remembered, at all times, that providing information is a secondary goal. The primary goal, of course, is to promote the sale of their product.

The best defense the physician can muster against (misleading) advertising is a healthy skepticism and a willingness... to do his homework. He must cultivate a flair for spotting the logical loophole, the invalid clinical trial, the unreliable or meaningless testimonial, the unneeded improvement and the unlikely claim. Above all, he must develop greater resistance to the lure of the fashionable and the new.²⁸

Pierre Garai
Pharmaceutical advertising executive

REFERENCES

1. Clark E. *The Want Makers: The World of Advertising: How They Make You Buy*. New York: Viking Penguin. 1989;13,24:18,202-32.
2. Schoell WF, Gultinan JP. *Marketing Contemporary Concepts and Practices*. 4th ed. Boston: Allyn and Bacon. 1990;488.
3. Karlins M, Abelson HI. *Persuasion. How opinions and attitudes are changed*. New York: Springer Publishing. 1970;33:19-21.
4. Johnson RH, Blair JA. *Logical Self-defense*. 2nd ed. Toronto: McGraw-Hill Ryerson Limited. 1983;246.
5. Smith MC, Visconti JA. Appeals used in prescription drug advertising. *Hosp Pharm*. 1968;3:5-13.
6. Smith MC. *Pharmaceutical Marketing. Strategy and Cases*. New York: Pharmaceutical Products Press. 1991;327-94.
7. Salmon MH. *Introduction to logic and critical thinking*. New York: Harcourt Brace Jovanovich. 1984;3.
8. Rawlins MD. Doctors and the drug makers. *Lancet*. 1984;2:276-8.
9. Bowman MA, Pearle DL. Changes in drug prescribing patterns related to commercial company funding of continuing medical education. *J Contin Educ Health Prof*. 1988;8:13-20.
10. Chren MM, Landefeld CS. Physicians' behavior and their interactions with drug companies: a controlled study of physicians who requested additions to a hospital drug formulary. *JAMA*. 1994;271:684-9.
11. Anonymous. Tagamet "greater safety" claim over Zantac is "unsubstantiated." *F-D-C Rep*. 1987;Oct 5:T&G1-2.
12. Kahane H. *Logic and Contemporary Rhetoric. The Use of Reason in Everyday Life*. Belmont, CA: Wadsworth Publishing, 1980.
13. Chren M, Landefeld S, Murray TH. Doctors, drug companies, and gifts. *JAMA*. 1989;262:3448-51.
14. Janis I, Kaye D, Kirshner P. Facilitating effects of "eating-while-reading" on responsiveness to persuasive communications. *J Pers Soc Psychol*. 1965;1:181-6.
15. Council on Ethical and Judicial Affairs, American Medical Association. Gifts to physicians from industry. *JAMA*. 1991;265:501.
16. CMA policy summary. Physicians and the pharmaceutical industry. *Can Med Assoc J*. 1992;146:388A-388C.
17. American College of Physicians. Physicians and the pharmaceutical industry. *Ann Intern Med*. 1990;112:624-6.
18. Shaughnessy AF. Drug promotion in a family medicine training center. *JAMA*. 1988;260:926.
19. Fleming M, Levie WH. *Instructional Message Design. Principles*

- from the Behavioral Sciences. Englewood Cliffs, NJ: Educational Technology Publications, 1978;237-8.
20. Britt SH. Psychological principles of marketing and consumer behavior. Lexington, MA: D. C. Heath. 1978;XV:206.
 21. Nickerson RS. Why teach thinking? In: Boykoff JB, Sternberg RJ (eds). Teaching Thinking Skills. Theory and Practice. New York: W. H. Freeman. 1987;27-38.
 22. Verma S. "A matter of influence": graduate medical education and commercial sponsorship. *N Engl J Med.* 1988;317:52.
 23. Schrank J. Deception Detection. Boston: Bacon Press, 1975;3.
 24. Slawson DC, Shaughnessy AF, Bennett JH. Becoming a medical information master: feeling good about not knowing everything. *J Fam Pract.* 1994;38:505-13.
 25. Guyatt GH, Sackett DL, Cook DJ; for the Evidence-Based Medicine Working Group. Users' guides to the medical literature. II. How to use an article about therapy or prevention. A. Are the results of the study valid? *JAMA.* 1993;270:2598-601.
 26. Eddy DM. Practice policies: where do they come from? *JAMA.* 1990;263:165-75.
 27. Kessler DA. Addressing the problem of misleading advertising. *Ann Intern Med.* 1992;116:950-1.
 28. Garai PR. Advertising and promotion of drugs. In: Talalay P (ed). *Drugs in our Society.* Baltimore: Johns Hopkins Press, 1964;189-202.
- 