test. It is true that less than 1 percent of the patients who screened negative actually had GABHS. The confusion lies in that "false-negative rates" can refer to one of two distinct proportions. The number of patients who actually had GABHS and screened negative are known as the false negatives,[2] which can be expressed as the proportion of all of the individuals who had negative tests (the value reported by Joslyn, et al.) or as a proportion of all of the individuals who actually had the disease.

Also the authors should have reported confidence intervals around relevant results, such as sensitivity, specificity, positive predictive value, and negative predictive value of the screening test.[3] For example, using the binomial distribution[3] with a sample size of 22 and a probability of 0.95, the 95 percent confidence interval around the sensitivity would extend from 77 percent to 100 percent. Thus, these results could be completely consistent with a true sensitivity of 77 percent for their rapid screening test, a value similar to the lower sensitivities reported in previous studies noted by the authors.

Finally, the authors claim that "relatively low prevalence . . . would make case detection more difficult" and that because of low prevalence, estimates of sensitivity, specificity, positive predictive value, and negative predictive value "would be conservative estimates of actual values." Unless there is some characteristic of the disease that varies with prevalence and makes an individual more or less likely to have a positive test result, sensitivity (case detection) does not change. Positive and negative predictive values of a test do change with prevalence, but in opposite directions. Hence, given greater prevalence of GABHS in the population, positive predictive value of the test would be expected to rise, and negative predictive value to fall.[4]

In summary, Joslyn, et al. report useful information that does have clinical application but requires appropriate epidemiologic interpretation.

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4. Sackett DL, Haynes RB, Guyatt GH, Tugwell P. Clinical epidemiology, a basic science for clinical medicine. 2nd ed. Boston: Little, Brown & Company, 1991:88.

The above letter was referred to the authors of the article in question, who offer the following reply:

*To the Editor:* We acknowledge the comments by Dr. Schafer and appreciate the opportunity to reply.

Dr. Schafer's first comment concerns the expression of false-negative rates, which we described as the proportion of all patients screening negative who were actually positive for group A β-hemolytic streptococcal pharyngitis (GABHS). Dr. Schafer makes reference to Last,[1] who defines false negative as a "negative test result in a subject who possesses the attribute for which the test is conducted." This definition does not include recommendations for a denominator to express a false-negative rate. Inasmuch as we provided actual numbers used in our calculations, the reader can use either the total number screened or total with disease as the denominator to interpret the results. The false-negative value reported was not meant to be misleading but was a reflection of our opinion that a false-negative result has more serious consequences than a false-positive one. Because the predictive value negative (PV-) is the probability that a person with a negative screening test does not have the disease,[1] we believed that reporting the false-negative rate as (1 − [PV-]) (out of all patients testing negative, those who actually had disease) gave an accurate indication of how well the screening test performed.

Dr. Schafer gave recommendations for reporting confidence intervals around our reported values of sensitivity, specificity, predictive value positive, and predictive value negative. Confidence intervals are used to construct a range of values around a sample statistic, so that the range has a specific probability of including the true value of the variable.[1] Compared with using a sample, however, when an entire population is measured, confidence intervals are not necessary. The true values of the variables are known, not estimated.[2] In our study we tested all patients in the population of interest in a specific period, not a sample of the population. The reported values of sensitivity, specificity, and predictive values positive and negative were actual parameters of our population. This reporting convention is common in screening studies utilizing entire patient populations.

Finally, Dr. Schafer questions our claim of conservative estimates of sensitivity, specificity, and predictive values positive and negative during times of low GABHS prevalence. According to Hennekens and Buring,[3] "No matter how specific the [screening] test, if the population is at low risk of having the disease, results that are positive will mostly be false positive." If prevalence increases, proportions of true positive and true negative subjects will also increase relative to the number of false positives. This will result in improved values of sensitivity, specificity, and predictive values positive and negative, which would support our claim of conservative estimates during seasons of low prevalence of GABHS (spring through fall). We appreciate the opportunity to justify our methods and conclusions.

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2. Kuzma JW. Basic statistics for the health sciences. 2nd ed. Mountain View, CA: Mayfield Publishing Company, 1992:16.
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**Polypharmacy in Nursing Homes**

*To the Editor:* I enjoyed Ackermann and Meyer von Bremen's article on reducing polypharmacy in the nursing home.[1] They referenced an article written by Ide and myself[2] to support the statement: " . . . Prophylactic or topical antibiotics are clearly not effective . . . ," regarding the treatment of pressure ulcers.

While it is clear that antibiotics are not a primary treatment for pressure ulcers, our article did recommend the use of topicals, such as silver sulfadiazine or bacitracin, for wounds with exudate or erythema. Recent guidelines published by the Agency for Health Care Policy and Research recommend triple antibiotic or silver sulfadiazine for wounds that do not show healing after 2 to 4 weeks of standard therapy.[3]

It is certainly true that overuse of antibiotics, especially systemic agents, leads to undesirable outcomes, such as enterocolitis resulting from colonization with methicillin-resistant *Staphylococcus aureus* and *Clostridium difficile*.

G. David Spoelhof, MD
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**References**

1. Ackermann RJ, Meyer von Bremen GB. Reducing polypharmacy in the nursing home: an activist approach. J Am Board Fam Pract 1995; 8:195-205.
2. Spoelhof GD, Ide K. Pressure ulcers in nursing home patients. Am Fam Physician 1993; 47:1205-15.
3. Bergstrom N, Bennett MA, Carlson CE, et al. Treatment of pressure ulcers, clinical practice guideline, no 15. Rockville, MD: US Department of Health and Human Services, Public Health Service, Agency for Health Care Policy and Research, 1994. AHCPR publication no. 95-0652, December 1994.

*To the Editor:* I enjoyed reading the article in the May-June issue of *JABFP* regarding "Reducing Polypharmacy in the Nursing Home: An Activist Approach" by Ackermann and Meyer von Bremen (JABFP 1995; 8: 195-205). In addition to their comments on various high-risk drugs mentioned in the article, I would like to make two further points.

The first point relates to the use of diuretics in general. The normal aging process is accompanied by an absolute reduction in the amount of total body water, especially in the advanced elderly population, the most common age group of the elderly in the nursing home.[1] In addition, as the authors point out, many nursing home elders have cognitive dysfunction in the form of dementia or depression with associated anorexia and reduced fluid intake. These patients often forget to eat and drink, and dehydration is a frequent problem.[1] In addition to the need to monitor potassium levels, physicians should be aware that such patients might be prone to postural hypotension and subsequent falls. Therefore, as the author indicates, ACE inhibitors and calcium channel blockers might be more appropriate drugs to prescribe.

Second, another class of drugs that should be prescribed with caution involves the anticholinergic drugs, especially the antihistamines frequently used to treat upper respiratory tract infection and allergy symptoms. The article does briefly mention the psychotropic medications as another class of troublesome medications, the discussion for which was deferred, because they deserve special attention and because they have received widespread attention since the Omnibus Budget Reconciliation Act (OBRA) of 1987. Readers might not know, however, that those psychotropic medications with high anticholinergic activity can contribute to or cause cognitive dysfunction (toxic dementia syndrome), as well as lead to functional decline.[2] These medications include the sedating major tranquilizers and tricyclic antidepressants. Leading the list of notoriously worrisome tricyclic antidepressants is amitriptyline.[3] These drugs should probably be avoided or used in the lowest possible dose in the nursing home population. Again, thank you for the very thorough discussion of this very important topic.

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2. Harrington C, Tompkins C, Curtis Grant L. Psychotropic drug use in long-term care facilities: A review of the literature. Gerontologist 1992; 32:822-33.
3. Willcox SM, Himmelstein DU, Woolhandler S. Inappropriate drug prescribing for the community-dwelling elderly. JAMA 1994; 272:292-6.

The above letters were referred to the authors of the article in question, who offer the following reply:

*To the Editor:* I agree with Dr. Spoelhof that two clinical trials support the use of topical antibiotics in selected patients with pressure ulcers.[1,2] The Agency for Health Care Policy and Research clinical practice guideline on the treatment of pressure ulcers recommends:

> Consider initiating a 2-week trial of topical antibiotics for clean pressure ulcers that are not healing or are continuing to produce exudate after 2 to 4 weeks of optimal patient care (as defined in this guideline). The antibiotic should be effective against Gram-negative, Gram-positive, and anaerobic organisms (e.g., silver sulfadiazine, triple antibiotic).[3]

Prolonged or routine use of topical antibiotics in patients with pressure sores is not indicated, and much more research in this critical area is needed.