

# Costs of GAS Pharyngitis Pegged at \$205 per Case

BY JEFF EVANS  
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The medical and nonmedical costs of group A streptococcal pharyngitis in American children and adolescents add up to an estimated \$205 per case, or between \$224 million and \$539 million annually across the country, according to results of the first study to collect empirical data of this type for the illness.

The results of the study suggest that not

only might routine vaccination of school-aged children with a group A streptococcal (GAS) vaccine prevent pharyngitis, but it also could reduce unnecessary antibiotic use and the transmission of GAS infection within the community, reported Elizabeth Pfoh of Harvard Medical School, Boston, and her associates (*Pediatrics* 2008;121:229-34).

Ms. Pfoh and her colleagues conducted a survey over the telephone with one parent from 135 (57%) of the 236 eligible families with at least one episode of GAS

pharyngitis who presented to two pediatric practice sites in the Boston metropolitan area during 2005-2006.

Children who presented to the practices were ill with symptoms associated with GAS pharyngitis for a mean of 4.5 days. In 29% of the cases, at least one other family member developed GAS pharyngitis after the index case. These transmissions led to a mean of 2.6 sick family members other than the index case in households where transmission occurred. Within families,

the overall mean secondary attack rate was 20%.

The children who had GAS pharyngitis missed an average of 1.9 days of school or day care, whereas 57 of the 135 parents who were surveyed missed an average of 1.8 workdays to care for their child. A second parent or caregiver missed a mean of 1.5 workdays in 14% of the families. A little more than half of the survey respondents also said that they missed an average of 0.3 days of personal time during their child's illness.

Most of the children with GAS pharyngitis required only one outpatient visit (87%). None of the children required hospitalization for complications associated with the condition.

The investigators extrapolated from their findings to the U.S. population with various national estimates for health service utilization data, costs of services, and values of work and personal time lost to calculate the total costs in 2006 dollars.

Although the combined mean medical (\$118) and nonmedical (\$87) costs for each case of GAS pharyngitis were less than what has been reported for otitis media in children (\$262) or pertussis in adolescents (\$397), the fact that GAS pharyngitis occurs more frequently than these other infections means that there potentially could be significant economic benefits in preventing GAS pharyngitis, according to Ms. Pfoh and her coinvestigators.

The medical costs associated with GAS pharyngitis were attributable to outpatient visits (52%), followed by antibiotic treatment (24%), diagnostic testing (17%), and emergency department visits (7%). Nonmedical costs comprised time costs (46%), child care expenses (16%), transportation (15%), deductibles or co-payments (15%), and over-the-counter medications (8%).

The investigators suggested that their study was limited in its generalizability because of its small sample size and its largely middle-class, English-speaking participants. They tried to limit recall bias by surveying parents between 2 and 6 weeks after the illness episode.

Any inclusion of GAS carriers who did not have true acute infections may have been balanced by the fact that the investigators did not include costs incurred by sick family members, costs of missed school days, and costs of complications. ■

## AzaSITE™

(azithromycin ophthalmic solution) 1%

### Sterile topical ophthalmic drops

#### BRIEF SUMMARY

Before prescribing, please consult the full prescribing information.

#### INDICATIONS AND USAGE

AzaSite is indicated for the treatment of bacterial conjunctivitis caused by susceptible isolates of the following microorganisms:

CDC coryneform group G\*  
*Haemophilus influenzae*  
*Staphylococcus aureus*  
*Streptococcus mitis* group  
*Streptococcus pneumoniae*

\*Efficacy for this organism was studied in fewer than 10 infections.

#### DOSAGE AND ADMINISTRATION

The recommended dosage regimen for the treatment of bacterial conjunctivitis is:  
Instill 1 drop in the affected eye(s) twice daily, eight to twelve hours apart for the first two days, and then instill 1 drop in the affected eye(s) once daily for the next five days.

#### CONTRAINDICATIONS

None

#### WARNINGS AND PRECAUTIONS

##### Topical Ophthalmic Use Only

NOT FOR INJECTION. AzaSite is indicated for topical ophthalmic use only and should not be administered systemically, injected subconjunctivally, or introduced directly into the anterior chamber of the eye.

##### Anaphylaxis and Hypersensitivity With Systemic Use of Azithromycin

In patients receiving systemically administered azithromycin, serious allergic reactions, including angioedema, anaphylaxis, and dermatologic reactions including Stevens Johnson Syndrome and toxic epidermal necrolysis have been reported rarely in patients on azithromycin therapy. Although rare, fatalities have been reported. While these reactions have not been observed with topical ophthalmic use of AzaSite, the potential for anaphylaxis or other hypersensitivity reactions should be considered, since patients with a known hypersensitivity to azithromycin or erythromycin were excluded from study.

##### Growth of Resistant Organisms With Prolonged Use

As with other anti-infectives, prolonged use may result in overgrowth of nonsusceptible organisms, including fungi. If superinfection occurs, discontinue use and institute alternative therapy. Whenever clinical judgment dictates, the patient should be examined with the aid of magnification, such as slit-lamp biomicroscopy, and where appropriate, fluorescein staining.

##### Avoidance of Contact Lenses

Patients should be advised not to wear contact lenses if they have signs or symptoms of bacterial conjunctivitis.

#### ADVERSE REACTIONS

The most frequently reported ocular adverse reaction in patients receiving AzaSite was eye irritation. This reaction occurred in approximately 1% to 2% of patients. Other adverse reactions associated with the use of AzaSite were reported in

less than 1% of patients and included burning, stinging and irritation upon instillation, contact dermatitis, corneal erosion, dry eye, dysgeusia, nasal congestion, ocular discharge, punctate keratitis, and sinusitis.

#### USE IN SPECIFIC POPULATIONS

##### Pregnancy

**Pregnancy Category B.** Reproduction studies have been performed in rats and mice at doses up to 200 mg/kg/d. The highest dose was associated with moderate maternal toxicity. These doses are estimated to be approximately 5000 times the maximum human ocular daily dose of 2 mg. In the animal studies, no evidence of harm to the fetus due to azithromycin was found. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, azithromycin should be used during pregnancy only if clearly needed.

##### Nursing Mothers

It is not known whether azithromycin is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when azithromycin is administered to a nursing woman.

##### Pediatric Use

The safety and effectiveness of AzaSite solution in pediatric patients below 1 year of age have not been established. The efficacy of AzaSite in treating bacterial conjunctivitis in pediatric patients one year or older has been demonstrated in controlled clinical trials.

##### Geriatric Use

No overall differences in safety or effectiveness have been observed between elderly and younger patients.

#### STORAGE AND HANDLING

Store unopened bottle under refrigeration at 2°C to 8°C (36°F to 46°F). Once the bottle is opened, store at 2°C to 25°C (36°F to 77°F) for up to 14 days. Discard after the 14 days.

#### PATIENT COUNSELING INFORMATION

Patients should be advised to avoid contaminating the applicator tip by allowing it to touch the eye, fingers, or other surfaces. Patients should be directed to discontinue use and contact a physician if any signs of an allergic reaction occur.

Patients should be told that although it is common to feel better early in the course of the therapy, the medication should be taken exactly as directed. Skipping doses or not completing the full course of therapy may (1) decrease the effectiveness of the immediate treatment and (2) increase the likelihood that bacteria will develop resistance and will not be treatable by AzaSite or other antibacterial drugs in the future.

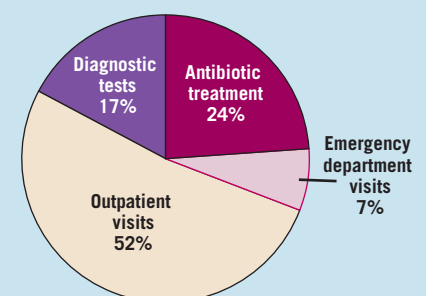
Patients should be advised not to wear contact lenses if they have signs or symptoms of bacterial conjunctivitis. Patients are advised to thoroughly wash hands before using AzaSite.

#### Rx only

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Manufactured by Cardinal Health  
U.S. PAT NO. 5,225,196; 5,192,535; 6,239,113; 6,569,443;  
6,861,411; 7,056,893; and Patents Pending  
AZA-0037

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### Breakdown of Group A Streptococcal Pharyngitis Medical Costs



Note: Based on a survey of 135 cases.  
Source: *Pediatrics* 2008;121:229-34