

# Stethoscope 'Rubbing' Helps to Counter Bacteria

BY BETSY BATES  
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LOS ANGELES — One in five stethoscopes used by hospital physicians was contaminated with *Staphylococcus aureus*, including one that harbored methicillin-resistant *S. aureus*, according to a study presented at the annual meeting of the Society for Healthcare Epidemiology of America.

Cultures taken from stethoscopes also

grew *Enterococcus* species and *Enterobacter aerogenes*.

Skin flora, including diphtheroids,  $\alpha$ -hemolytic streptococci, and coagulase-negative staphylococci, were the most common microorganisms found on 84 randomly tested stethoscopes from house staff, medical students, and attending physicians at Grady Memorial and Emory Crawford Long Hospitals, Atlanta.

The median number of colony-forming units isolated from stethoscopes was 35,

with a range of 0-247. The stethoscopes were tested by investigators from Emory University, Atlanta.

"We don't mean to claim stethoscopes are the scourge of civilization, or that they are anywhere near as important in transmitting disease as hand carriage," James P. Steinberg, M.D., an associate chief of medicine and hospital epidemiologist, said in an interview. "But they can be colonized."

In a related survey of stethoscope users,

10 said they cleaned their stethoscopes between patients. Another 35 cleaned them daily, 30 did so weekly, 7 cleaned them monthly, and 2 never cleaned them.

When 24 of the stethoscopes were wiped with an alcohol pad as part of the study, the median number of colony-forming units plummeted to 0, with a range of 0-59.

However, because there is no "smoking gun" linking contaminated stethoscopes with disease, Dr. Steinberg said it seems excessive to recommend that all health professionals clean their stethoscopes with alcohol wipes before and after every patient contact.

Use of alcohol hand rubs, on the other hand, is already routinely recommended before and after patient contacts, so Dr. Steinberg and associates set out to determine whether a quick rub of the stethoscope might suffice.

Indeed it did.

Among 60 stethoscopes with a median of 33.5 colony-forming units at baseline (range, 1-247), the median colony-forming units dropped to 4 (range, 0-60) after the stethoscopes were swiped with an alcohol hand rub.

"Combining stethoscope 'rubbing' with routine hand hygiene provides a practical and effective method of stethoscope disinfection that could be incorporated into routine bedside practice," Dr. Steinberg's poster presentation concluded. ■

## Vigamox™

(moxifloxacin hydrochloride ophthalmic solution) 0.5% as base

**DESCRIPTION:** VIGAMOX™ (moxifloxacin HCl ophthalmic solution) 0.5% is a sterile ophthalmic solution. It is an 8-methoxy fluoroquinolone anti-infective for topical ophthalmic use.

### Clinical Studies:

In two randomized, double-masked, multicenter, controlled clinical trials in which patients were dosed 3 times a day for 4 days, VIGAMOX™ solution produced clinical cures on day 5-6 in 66% to 69% of patients treated for bacterial conjunctivitis. Microbiological success rates for the eradication of the baseline pathogens ranged from 84% to 94%. Please note that microbiologic eradication does not always correlate with clinical outcome in anti-infective trials.

**INDICATIONS AND USAGE:** VIGAMOX™ solution is indicated for the treatment of bacterial conjunctivitis caused by susceptible strains of the following organisms:

### Aerobic Gram-positive microorganisms:

*Corynebacterium* species\*, *Micrococcus luteus*\*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Staphylococcus haemolyticus*, *Staphylococcus hominis*, *Staphylococcus warneri*\*, *Streptococcus pneumoniae*, *Streptococcus viridans* group

### Aerobic Gram-negative microorganisms:

*Acinetobacter lwoffii*\*, *Haemophilus influenzae*, *Haemophilus parainfluenzae*\*

### Other microorganisms:

*Chlamydia trachomatis*

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

**CONTRAINDICATIONS:** VIGAMOX™ (moxifloxacin HCl ophthalmic solution) is contraindicated in patients with a history of hypersensitivity to moxifloxacin, to other quinolones, or to any of the components in this medication.

### WARNINGS:

NOT FOR INJECTION.

VIGAMOX™ solution should not be injected subconjunctivally, nor should it be introduced directly into the anterior chamber of the eye. In patients receiving systemically administered quinolones, including moxifloxacin, serious and occasionally fatal hypersensitivity (anaphylactic) reactions have been reported, some following the first dose. Some reactions were accompanied by cardiovascular collapse, loss of consciousness, angioedema (including laryngeal, pharyngeal or facial edema), airway obstruction, dyspnea, urticaria, and itching. If an allergic reaction to moxifloxacin occurs, discontinue use of the drug. Serious acute hypersensitivity reactions may require immediate emergency treatment. Oxygen and airway management should be administered as clinically indicated.

### PRECAUTIONS:

**General:** As with other anti-infectives, prolonged use may result in overgrowth of non-susceptible 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. Patients should be advised not to wear contact lenses if they have signs and symptoms of bacterial conjunctivitis.

**Information for Patients:** Avoid contaminating the applicator tip with material from the eye, fingers or other source. Systemically administered quinolones including moxifloxacin have been associated with hypersensitivity reactions, even following a single dose. Discontinue use immediately and contact your physician at the first sign of a rash or allergic reaction.

**Drug Interactions:** Drug-drug interaction studies have not been conducted with VIGAMOX™ solution. *In vitro* studies indicate that moxifloxacin does not inhibit CYP3A4, CYP2D6, CYP2C9, CYP2C19, or CYP1A2 indicating that moxifloxacin is unlikely to alter the pharmacokinetics of drugs metabolized by these cytochrome P450 isozymes.

**Carcinogenesis, Mutagenesis, Impairment of Fertility:** Long-term studies in animals to determine the carcinogenic potential of moxifloxacin have not been performed. However, in an accelerated study with initiators and promoters, moxifloxacin was not carcinogenic in rats following up to 38 weeks of oral dosing at 500 mg/kg/day (approximately 21,700 times the highest recommended total daily human ophthalmic dose for a 50 kg person, on a mg/kg basis).

Moxifloxacin was not mutagenic in four bacterial strains used in the Ames *Salmonella* reversion assay. As with other quinolones, the positive response observed with moxifloxacin in strain TA 102 using the same assay may be due to the inhibition of DNA gyrase. Moxifloxacin was not mutagenic in the CHO/HGPRT mammalian cell gene mutation assay. An equivocal result was obtained in the same assay when v79 cells were used. Moxifloxacin was clastogenic in the v79 chromosome aberration assay, but it did not induce unscheduled DNA synthesis in cultured rat hepatocytes. There was no evidence of genotoxicity *in vivo* in a micronucleus test or a dominant lethal test in mice.

Moxifloxacin had no effect on fertility in male and female rats at oral doses as high as 500 mg/kg/day, approximately 21,700 times the highest recommended total daily human ophthalmic dose. At 500 mg/kg orally, there were slight effects on sperm morphology (head-tail separation) in male rats and on the estrous cycle in female rats.

### Pregnancy: Teratogenic Effects.

**Pregnancy Category C:** Moxifloxacin was not teratogenic when administered to pregnant rats during organogenesis at oral doses as high as 500 mg/kg/day (approximately 21,700 times the highest recommended total daily human ophthalmic dose); however, decreased fetal body weights and slightly delayed fetal skeletal development were observed. There was no evidence of teratogenicity when pregnant Cynomolgus monkeys were given oral doses as high as 100 mg/kg/day (approximately 4,300 times the highest recommended total daily human ophthalmic dose). An increased incidence of smaller fetuses was observed at 100 mg/kg/day.

Since there are no adequate and well-controlled studies in pregnant women, VIGAMOX™ solution should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

**Nursing Mothers:** Moxifloxacin has not been measured in human milk, although it can be presumed to be excreted in human milk. Caution should be exercised when VIGAMOX™ solution is administered to a nursing mother.

**Pediatric Use:** The safety and effectiveness of VIGAMOX™ solution in infants below 1 year of age have not been established. There is no evidence that the ophthalmic administration of VIGAMOX™ has any effect on weight bearing joints, even though oral administration of some quinolones has been shown to cause arthropathy in immature animals.

**Geriatric Use:** No overall differences in safety and effectiveness have been observed between elderly and younger patients.

### ADVERSE REACTIONS:

The most frequently reported ocular adverse events were conjunctivitis, decreased visual acuity, dry eye, keratitis, ocular discomfort, ocular hyperemia, ocular pain, ocular pruritus, subconjunctival hemorrhage, and tearing. These events occurred in approximately 1-6% of patients. Nonocular adverse events reported at a rate of 1-4% were fever, increased cough, infection, otitis media, pharyngitis, rash, and rhinitis.

### References:

1. Data on file. Alcon Laboratories, Inc. 2004.

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## Do Gonorrhea Screening for High-Risk Girls

Clinicians should perform routine screening of all sexually active women at increased risk for gonorrhea, because of the high risk for pelvic inflammatory disease, ectopic pregnancy, and chronic pelvic pain associated with asymptomatic gonorrhea infection, according to the U.S. Preventive Services Task Force.

Those at risk include sexually active women under age 25 years, those with previous gonorrhea or other sexually transmitted infections, those with new or multiple sex partners, those who don't consistently use condoms, sex workers, and drug users.

Pregnant women with these risk factors should be screened at the first prenatal visit, and those with ongoing or new risk factors should also be screened during the third trimester because gonorrhea increases the risk of preterm rupture of membranes, chorioamnionitis, and preterm labor, according to the U.S. Preventive Services Task Force (Ann. Fam. Med. 2005;3:263-7).

The task force recommended against routine screening in women and men at low risk for gonorrhea, and it found insufficient evidence to recommend for or against routine screening in men at high risk.

—Sharon Worcester