

OTITIS MEDIA

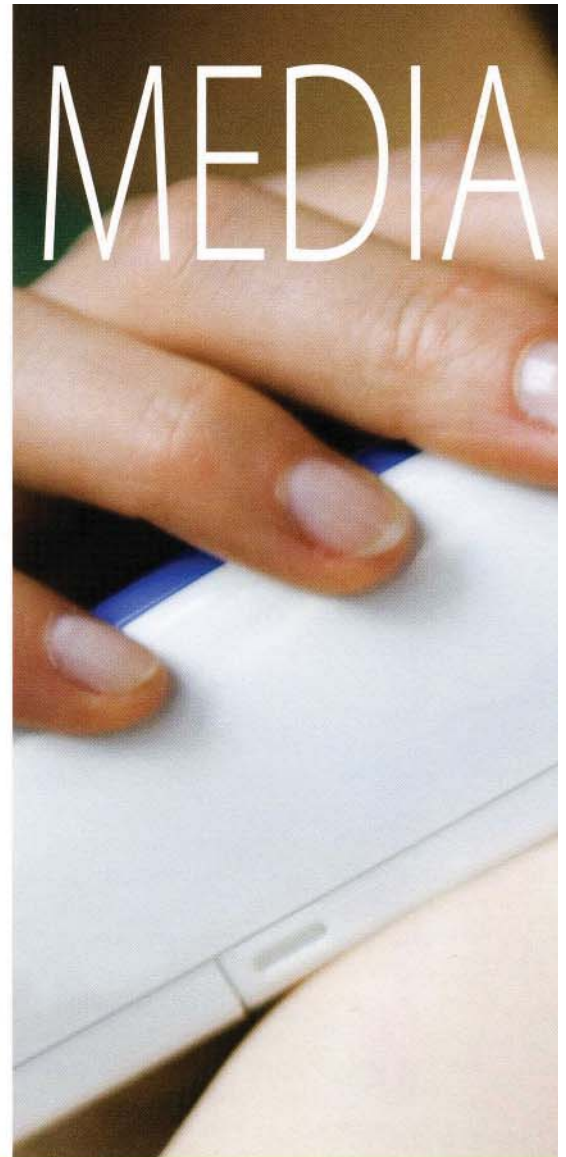
Fighting One of Childhood's Ills

Most

parents of toddlers are all too familiar with otitis media (OM), more commonly referred to as an ear infection. According to the National Institute on Deafness and Other Communication Disorders, 75% of children experience at least one episode of otitis media by their third birthday, while almost half of those children will have had three or more infections. The medical costs to treat otitis media and lost wages due to the disease are estimated to be in the billions of

dollars annually. Ear infections are the number one reason children are taken to the pediatrician.

Otitis media is an infection or inflammation in the middle ear that occurs in one of two ways. The first, an acute ear infection, is accompanied by pain and fever. This is most prevalent during winter months, when upper respiratory virus infection (the common cold) is widespread among infants and young children. The common cold often causes inflammation and swelling of the Eustachian tube,



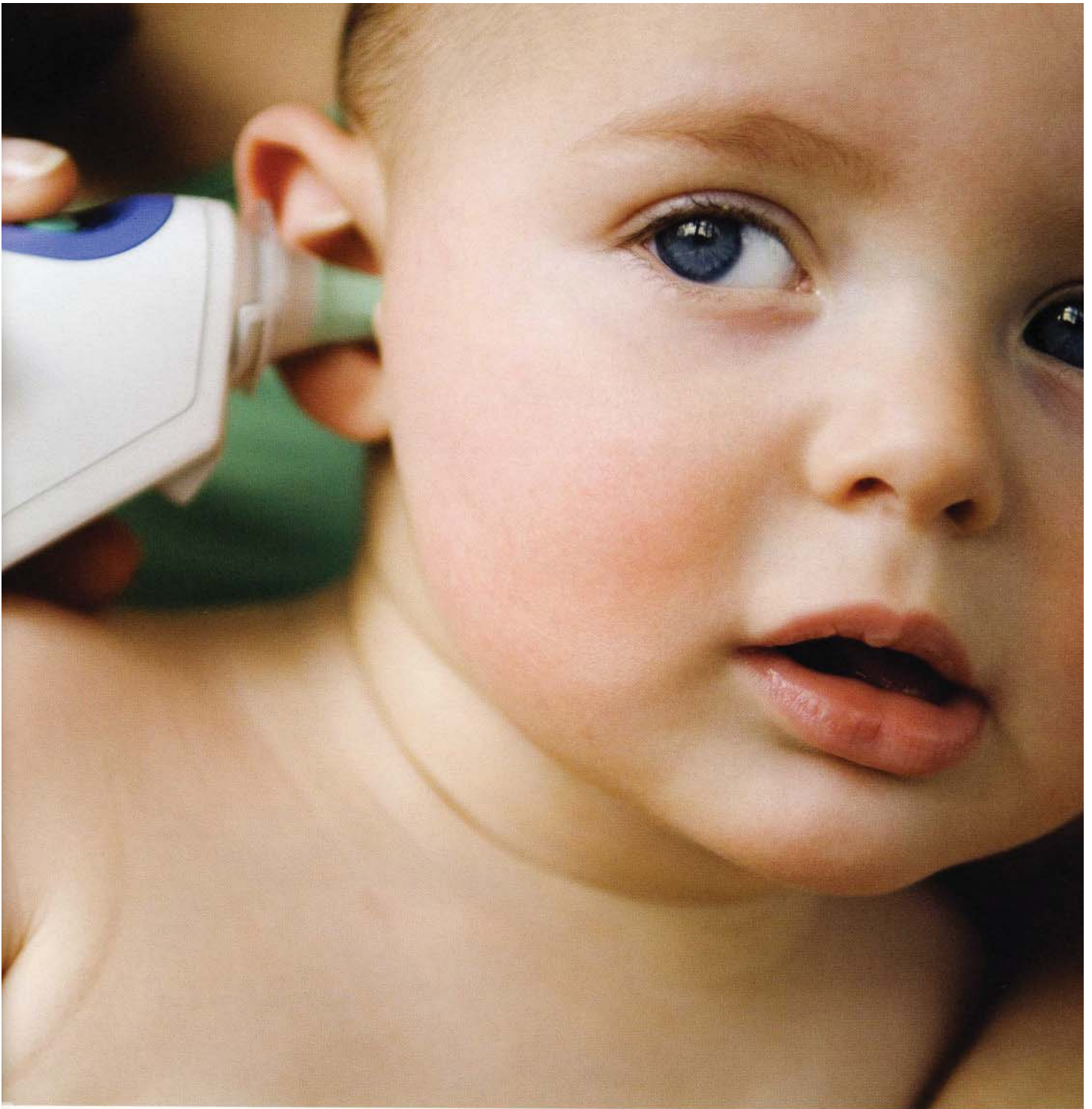
“Our research is focused on how bacteria interact with the host cell, in this case in the middle ear. We are trying to determine what the natural defense mechanisms are for the ear to fight off infection.”

DR. DAVID LIM

NIH Grants for Otitis Media Research at HEI

A research grant from the National Institutes of Health (NIH) received by Dr. David Lim has enabled his research team to conduct studies that were the first to demonstrate that molecules of the innate immune system have potent antimicrobial activity against the pathogens of otitis media. Based on these research results, HEI applied for and received a U.S. patent entitled “Use of antimicrobial proteins and peptides for the treatment of otitis media and paranasal sinusitis”.

Additionally, Dr. Sung-Kyun Moon of Dr. Lim’s research team has received an NIH grant to investigate the role of spiral ligament cells in recruiting inflammatory cells to the inner ear, triggering inflammation.



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Dr. Lim is looking for natural ways to help the body fight off an ear infection instead of using antibiotics

which connects the middle ear cavity to the nose and throat. The Eustachian tube is shorter and smaller in children than in adults and more vulnerable to blockage. Poor Eustachian tube function creates a high negative pressure in the middle ear, which promotes entry of resident bacteria to the middle ear cavity. These bacteria cause an acute infection (inflammation), resulting in pain, fever and fluid accumulation in the middle ear.

The second instance, otitis media with effusion (OME), is the accumulation of fluid in the middle ear space without symptoms of an acute ear infection. This generally follows treatment of an acute

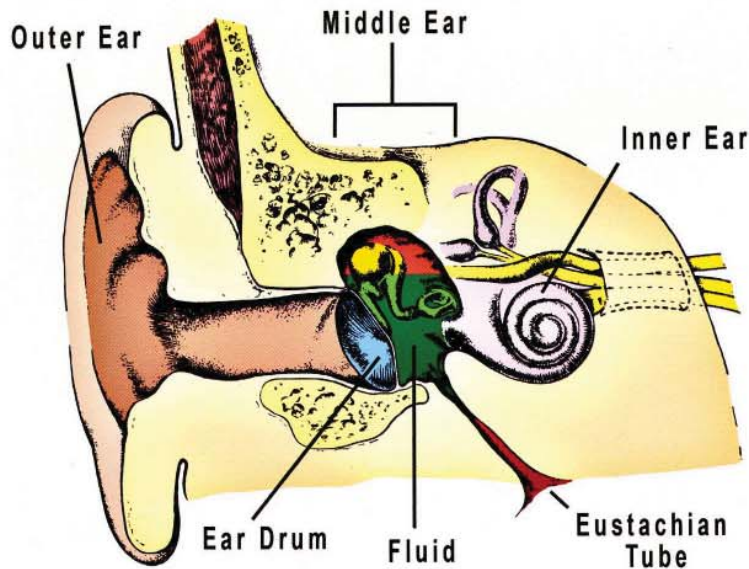
or signs of inflammation, this condition can go unnoticed. Parents may find the TV volume is too loud or a teacher may see that the child is not paying attention in class.

Some of the major risk factors for contracting otitis media include exposure to the common cold through contact with other children in preschool and day care facilities, bottlefeeding as

and wait” approach to ear infections, antibiotics are still a common treatment. On rare occasions, otitis media left untreated can cause permanent hearing loss. Usually hearing loss is temporary and the child’s hearing is restored when the infection clears up. Most children outgrow the tendency to develop otitis media by the time they are seven or eight years old.

“We do not fully understand the interaction of the bacteria with the host in otitis media,” said OM expert, David Lim, M.D. “Our research is focused on how bacteria interact with the host cell in the middle ear. We are trying to identify the natural defense mechanisms that enable the ear to fight off infection.”

Lysozyme, a protein enzyme found in egg white, tears and other secretions, may provide a natural antibacterial defense mechanism against otitis media. Sold at health food stores as a digestive aid, lysozyme is rarely used to fight infection. It works by breaking down the polysaccharide that is found on the cell walls of many bacteria, making it easier for white blood cells to surround the bacteria and stop an infection. Still in its early test tube phase, Dr. Lim is hopeful that the research results may lead to a non-antibiotic treatment for otitis media. “Although the delivery method has yet to be tested, in the future we may be able to give lysozyme to children who are at high risk for developing otitis media,” he said. ❖



ear infection with antibiotics. Evidence suggests that when dead bacteria or bacterial components remain in the middle ear due to poor tubal function, these bacterial toxins can cause and sustain chronic inflammation and fluid accumulation. Unlike children with an acute ear infection, children with OME are not sick. Because there are no symptoms

opposed to breastfeeding, second-hand smoke, allergies and some birth defects. However, the primary risk factor is a family history of otitis media. If otitis media runs in a child’s family, that child is five times more likely to be susceptible to the disease.

Although the American Academy of Pediatrics recommends a “watch