Improving Medicine Acceptance in Kids: A Matter of Taste

PHILADELPHIA (July 24, 2013) – Despite major advances in the pharmaceutical treatment of disease, many children reject medicines due to an aversion to bitter taste. As such, bitterness presents a key obstacle to the acceptance and effectiveness of beneficial drugs by children worldwide.

A new review, published online ahead of print in *Clinical Therapeutics*, addresses this critical problem by highlighting recent advances in the scientific understanding of bitter taste, with special attention to the sensory world of children.

Written by an interdisciplinary team of leading taste scientists from the Monell Chemical Senses Center, Florida State University, and the University of Washington, the paper focuses on applying this knowledge to improve drug acceptance and compliance in pediatric populations.

Several biological factors highlight the importance of understanding bitter taste to the successful formulation of pediatric medications. Bitter taste is thought to have evolved as a protection against toxins, as many poisons taste bitter. Because of this, it is very difficult to disguise or mask bitterness.

Compounding this problem is the fact that children, who are especially sensitive to bitterness, cannot swallow pills or tablets, which encapsulate bitterness in adult formulations.

The state-of-the-science review summarizes current knowledge on how bitter taste works from a biological perspective. In addition, the paper provides a comprehensive overview of methods used to assess taste responses in children. The authors point out critical gaps in the existing understanding of how best to measure bitterness in children, whose cognitive and perceptual abilities differ from those of adults.

“The problems associated with pediatric drug formulations are enormous and can hinder optimal therapeutic outcomes,” said lead author Julie Mennella, PhD, a developmental
psychobiologist at Monell. “Both the complexity of bitter taste and the unique sensory world of children contribute to this critical issue.”

Mennella is the co-chair, and co-authors Alan Spector from Florida State University and Susan Coldwell of the University of Washington are members of the Taste and Flavor Working Group of the Pediatric Formulation Initiative at the Eunice Kennedy Schriver National Institute of Child Health and Human Development.

The Pediatric Formulation Initiative (PFI) was formed to address the lack of appropriate formulations in children and to identify mean to improve pediatric formulations, as mandated by the Best Pharmaceuticals for Children Act of 2002 and 2007. The PFI began in 2005 with the formation of three working groups: Scientific, Economics, and Taste and Flavor, to identify issues, gather information, and consider possible ways to overcome barriers to the development of successful pediatric drug formulations.

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The Monell Chemical Senses Center is an independent nonprofit basic research institute based in Philadelphia, Pennsylvania. For 45 years, Monell has advanced scientific understanding of the mechanisms and functions of taste and smell to benefit human health and well-being. Using an interdisciplinary approach, scientists collaborate in the programmatic areas of sensation and perception; neuroscience and molecular biology; environmental and occupational health; nutrition and appetite; health and well-being; development, aging and regeneration; and chemical ecology and communication. For more information about Monell, visit www.monell.org.