

## MedInvent, LLC announces new performance data for the NasoNeb® Nasal Nebulizer

**April 15, 2013. Orlando, FL:** New performance data regarding the NasoNeb® Nasal Nebulizer was presented at the Combined Otolaryngology Society Meeting 2013 in Orlando, FL. MedInvent believes this data should impact the choice of delivery systems for physicians when considering patient safety and patient compliance when prescribing topical therapies for their rhinologic patients<sup>4</sup>.

Prior reports in the literature have linked cold-fluid intranasal irrigation to the formation of exostoses in the paranasal sinus cavities of post-operative patients<sup>1, 3, 7, 9</sup>. Medicated irrigation solutions are often required to be stored in the refrigerator prior to use. Four centers reported finding these bony formations in the paranasal sinuses in post-operative patients who routinely used cold-fluid irrigations without warming of the solution. Thus, exostoses have been shown to be an iatrogenic side effect of cold fluid intranasal irrigation.

This bench study demonstrated the effectiveness and time requirements of warming liquid medications that are stored in the refrigerator<sup>5</sup> using ambient warming in the standard irrigation bottles vs. the warming of aerosolization of the liquid via the NasoNeb Nasal Nebulizer.

The authors demonstrated that refrigerated solutions required at least 120 minutes at room temperature to warm to the ambient temperature in an irrigation bottle. The authors further demonstrated that the aeration of the fluid by the NasoNeb Nasal Nebulizer warms the fluid immediately to a similar temperature.

Irrigation may violate the “do no harm” oath, particularly if it is not likely that the patient will warm irrigation solutions prior to use. If cold irrigations cause exostoses as has been reported, patients should warm refrigerated irrigation solutions for an adequate period of time to ensure it reaches ambient temperature. This may negatively impact patient compliance and increase the risk of iatrogenic complications in patients who do not warm their solutions. NasoNeb is a convenient way to ensure solutions are delivered at or near ambient temperature without long wait times or damaging heat-labile ingredients.

“This scientific evidence demonstrates that the NasoNeb system is the right choice for physicians when choosing an intranasal topical therapy delivery system for their patients<sup>2, 4, 5, 6</sup>. This study joins the growing body of evidence supporting the NasoNeb, including outcomes data and deposition data presented by leading otolaryngology researchers<sup>2, 4, 6</sup>” said William Flickinger, CEO of MedInvent, LLC.

The study was supported by a material donation from MedInvent, LLC. The abstract is available on-line at <http://www.cosm.md/abstract/2013program.pdf>.

The NasoNeb Nasal Nebulizer is available by prescription through The NasoNeb Pharmacy Network<sup>SM</sup>, a network of compounding pharmacies across the US.

For more information, please visit the MedInvent, LLC website at [www.nasoneb.com](http://www.nasoneb.com).

### Referenced Studies

1. Adelson, RT, Kennedy DW: “Paranasal sinus exostoses: possible correlation with cold temperature nasal irrigation after endoscopic sinus surgery” *Laryngoscopy* 2013, Jan: 123(1): 24 – 7
2. Yuri M. Gelfand, MD; Samer Fakhri, MD; Amber Luong, MD, PhD; Seth J. Isaacs, MD & Martin J. Citardi, MD: “A Comparative Study of the Distribution of Normal Saline

Delivered by Large Particle Nebulizer vs. Large Volume/Low Pressure Squeeze Bottle”  
56th Annual Meeting of the American Rhinologic Society, September 25, 2010, page 38

3. Haffey, MD, Timothy; Woodard, MD, Troy, Sindwani, MD, Raj: “Paranasal Sinus Exostoses: An Unusual Complication of Topical Drug Delivery Using Cold Nasal Irrigations” Laryngoscope 2012, Sep;122(9):1893-7
4. Holmes, MD, Janalee; Haffey, MD, Timothy; Woodard, MD, Troy, Sindwani, MD, Raj: “Ambient Warming of Nasal Irrigation Solutions: Implications for Safe Topical Drug Delivery and Patient Compliance”; COSM 2013 Program, p. 42
5. Kristal Brown MD, James Lane BSc, Marianella Paz Silva, MD, Marcy DeTineo BSN, Robert M. Naclerio MD, and Fuad M. Baroody, MD: “Effects of Intranasal Budesonide Delivered by Nasal Nebulizer on Symptoms and Objective Measures of Nasal Congestion in Perennial Allergic Rhinitis” COSM 2013 Program, p 22
6. Manes RP, Tong L, Batra PS.: “Prospective evaluation of aerosol delivery by a powered nasal nebulizer in the cadaver model” Int Forum Allergy Rhinol, 2011; 1:366–371\
7. Ramakrishnan, MD, Jeevan B.; Pirron, MD, Jose A.; Perepletchikov, MD, PhD; Ferguson, MD FAAOA, Berrylin J.: “Exostoses of the paranasal sinuses” Laryngoscope 2010 Dec: 120(12) 2532 - 2534
8. Schwartz, KM, Eckel, LJ; Black, DF; Lehman, VT; Diehn, FE; Hunt, CH; Lindell, EP: “Irrigation Nose: CT Findings of Paranasal Exostoses” Open Neuroimag. J. 2012; 6:90-91

#### About MedInvent, LLC

MedInvent, LLC is a privately-held limited liability corporation established in 2008 with operations in White Bear Lake, MN. MedInvent develops and markets the NasoNeb Nasal Nebulizer for the topical delivery of medication to the nasal and paranasal sinus cavities. The NasoNeb Nasal Nebulizer is indicated for topical drug delivery to the nasal cavity for drugs formulated for inhalation.

Contact William Flickinger at 651-236-8545 for more information or visit our website at [www.nasoneb.com](http://www.nasoneb.com)

*This press release includes statements that may constitute "forward-looking" statements, usually containing the words "believe," "estimate," "project," "expect" or similar expressions. Forward-looking statements inherently involve risks and uncertainties that could cause actual results to differ materially from the forward-looking statements. Factors that would cause or contribute to such differences include, but are not limited to, continued acceptance for the Company's products in the marketplace, the effect of global credit and economic conditions on the ability and willingness of customers to purchase the NasoNeb systems, competitive factors, changes in government reimbursement procedures, dependence upon third-party vendors, and other risks. By making these forward-looking statements, the Company undertakes no obligation to update these statements for revisions or changes after the date of this release. There can be no assurance that the Company will recognize revenue related to its purchase orders and other commitments in any particular period or at all because some of these purchase orders and other commitments are subject to contingencies that are outside of the Company's control. In addition, these orders and commitments may be revised, modified or canceled, either by their express terms, as a result of negotiations, or by project changes or delays.*

