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Contacts:

Company: Brian Hochheimer

The EMMES Corporation

301-251-1161, ext. 232

bhochheimer@emmes.com

Media: Karen Vahouny

703-624-2674

kvahouny@gmail.com

**Data Analysis Conducted by Emmes Contributed to New
NIH Research Linking Air Pollution to Preterm Birth Risks
in Mothers with Asthma***Largest Study of its Type Offers Further Opportunities for Research*

Rockville, MD – March 10, 2016 – The Emmes Corporation today announced that it contributed to a landmark research study by the National Institutes of Health linking air pollution and preterm birth risk in pregnant women with asthma. The study, published in the *Journal of Allergy and Clinical Immunology*, reported that pregnant women with asthma have an increased risk for preterm birth when exposed to high levels of nitrogen oxides and carbon monoxide, common traffic-related air pollutants.

The study found that exposure to nitrogen oxide, for example, in the three months prior to conception, increased preterm birth risk by nearly 30 percent for women with asthma compared to 8 percent for women without asthma.

The company's work on this study initially began with a project for the Consortium on Safe Labor, in which an Emmes team conducted statistical analysis on more than 223,000 records of pregnant women. The data, spanning six years, were subsequently merged with air pollution data generated from a modified computational tool called the Community Multi-scale Air Quality Modeling System available from the Environmental Protection Agency. The goal was to determine whether there was a relationship between levels of air pollutants and pregnancy outcomes.

Dr. Seth Sherman, principal investigator and project manager for Emmes, said, "The study clearly

demonstrated a strong linkage between air pollution and the preterm birth risk of pregnant women with asthma.” He credited the leadership of Dr. Pauline Mendola, an investigator at the NIH’s *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, in the ground-breaking research.

According to Dr. Mendola, the study was the largest of its type based on the sample size and duration. “Only one other paper had looked at differential risk – comparing the impact of air pollutants on pregnant women who had and did not have asthma,” she said. “In addition, most of the studies on the environmental effects on health do not focus on maternal asthma. This research affects a sizable number of women, since about one of every 10 pregnant women suffers from this chronic disease.”

The research was also the first to examine whether exposure to air pollution before conception could affect later pregnancy. “The impact of air pollution on women’s reproductive health in general, especially in the pre-conception stage, merits further attention,” she added.

Emmes’ Dr. Sherman noted that this study has set the stage for new research that focuses more on individuals in a smaller group. Under a new project for the National Institute of Child Health and Human Development, Emmes is collecting daily level symptom and lung function test data from women in early pregnancy through post-delivery. The aim of the study is to help identify the environmental and biological factors that may play a role in negative health outcomes for asthmatic women during pregnancy.

He added, “We are also providing study participants who give their consent with small air monitoring devices to collect personal and indoor exposures at home. We hope to use our past experience with air pollution data to examine whether localized exposure levels impact lung function during pregnancy.”

Dr. Anne Lindblad, president and chief executive officer of Emmes, said, “We are so privileged to have the opportunity to contribute to studies like this. The findings suggest that reducing exposure to nitrogen oxides and carbon monoxide in women with asthma who are planning to become pregnant may help reduce the risks of preterm birth.”

She continued, “The data sets in this study represented information from around-the-clock monitoring of the exposure of pregnant women to pollutants for six years and across 15 different hospital sites throughout the U.S. This was a massive undertaking.”

About Emmes

We collaborate with our clients to produce valued, trusted scientific research. Our team members at Emmes are passionate about making a difference in the quality of human health, and we have supported more than a thousand studies across a diverse range of diseases since our formation in 1977. Our research is contributing to a healthier world. For more information, visit www.emmes.com.