

14th World Congress on

GENERAL PEDIATRICS & ADOLESCENT MEDICINE

September 25-27, 2017 Chicago, USA



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Pediatric acute respiratory distress syndrome: NAF's systems-based approach to risk assessment, diagnosis and treatment

NAF's emphasis on prevention has led to its support for the initial development of a web-based, open-access data analysis platform that supports clinician access and analysis of complex clinical data. This platform currently supports integration of data from clinical trials and ICU clinical databases and enables the application of analytic methods to create and evaluate cohorts within the accessible patient population. The Foundation's intent is to use its role as an honest broker to promote and enable sharing of data, in a de-identified and secure manner, amongst clinical researchers and clinicians to explore patient characteristics, disease presentation and both treatment and response. NAF's close collaboration with the medical community who treat patients with pARDS has enhanced its understanding of the complexity of dealing with critical syndromes and complex disorders that may only be diagnosed after admittance to the pediatric ICU. Its web-based platform is currently positioned to assist in the stratification of patients to improve patient management and outcome. It is clear, however, that the potential opportunity to identify children at risk and to develop approaches for prevention will be the key to achieving NAF's long-term goals. To accomplish this requires a more comprehensive analysis of the key factors involving exposures to environment and lifestyle factors that may occur during the child's development of their lungs and respiratory system. In medicine, it is well accepted that prevention can be much more effective than treatment towards obtaining an optimal outcome for the patient and their families, and this aligns directly with NAF's goals. To better understand what factors might contribute to the development of pARDS, the opportunity exists to enable researchers from clinical, basic science and epidemiological domains, to identify key risk factors pre- and post-natal. The currently is little opportunity to study the critical relationship during the development of a child's lung, that extends from pre-natal through birth into early childhood. At present, researchers from all domains typically work within silos reflecting overall stages of development as opposed to following a specific target organ, through its developmental stages, to understand the impact of external factors. These factors, including lifestyle and environmental exposure during pregnancy, may be further modulated in their impact by genetic factors as well. Although the complexities and variation in physiological development within specific organ systems is well known, it has rarely, if ever, been followed as the basis for integrating and accessing personal and clinical history data for the child and/or for the mother.

Biography

Michael N Liebman is an Adjunct Professor of Pharmacology and Physiology at Drexel College of Medicine and Adjunct Professor of Drug Discovery, First Hospital of Wenzhou Medical University. Previously, he was the Director of Computational Biology and Biomedical Informatics, University of Pennsylvania Cancer Center 2000-2003. He has served as Global Head of Computational Genomics, Roche Pharmaceuticals and Director, Bioinformatics and Pharmacogenomics, Wyeth Pharmaceuticals, Director of Genomics for Vysis, Inc. He is a Co-Founder of Prosanos, Inc., (now United BioSource) (2000). He was an Associate Professor of Pharmacology and of Physiology/Biophysics at Mount Sinai School of Medicine. He is on the Board of Directors of the Nathaniel Adamczyk Foundation in Pediatric ARDS, the Chair of the Informatics Program and also Chair of Translational Medicine and Therapeutics for the PhRMA Foundation and a Member of their Scientific Advisory Board.

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