



Ohio Children's Hospital Association
Saving, protecting and enhancing children's lives

OCHA Research Collaborative Results to Date – Neonatal Abstinence Syndrome & Asthma

As a result of Governor John R. Kasich's \$2 million grant to the six member hospitals of the Ohio Children's Hospital Association, research teams led by Ohio-based national leaders in neonatal abstinence syndrome and asthma have made major progress in improving health outcomes for children.

OVERALL:

- Developed regulatory, financial and informatics infrastructure to support collaborative data-driven research among all six children's hospitals. This is the first time this has happened in the U.S. in history.

Neonatal Abstinence Syndrome (NAS) – otherwise known as babies born drug-dependent:

- Created the largest prospective research sample of infants with NAS in history.
- Identified key maternal and infant characteristics: For example, mothers are largely white, single, publicly insured and had prenatal care. 46 percent had prescribed opiates as their source of addiction.
- Identified variations in treatment and opportunities to improve identification and treatment.
- The Ohio Perinatal Quality Collaborative (OPQC) has rolled out the OCHA NAS Protocol to 52 of the 54 (96%) Level 2 and 3 NICUs in the state:
 - In 2014: 2914 infants were enrolled across the state.
 - NAS treatment is being reported as 16.4 days from OPQC participants, decreased from a baseline of 21 days. This means the cost of an average NICU hospitalization for NAS has been reduced by \$4,600.
- Through generous support from Cardinal Health, the OCHA Protocol has also been exported to 5 additional states, including Delaware, New Hampshire, Vermont, Massachusetts, Tennessee, and Michigan. Together these represent 154 Level 2 and 3 NICUs. As of January 2015 all have adapted the Ohio protocol to their own local context.
- Published first project *Pediatrics* in August 2014 "Hall, et al for the Ohio Children's Hospitals Research Consortium. A multi-center cohort study of Treatments and Hospital Outcomes for Neonatal Abstinence Syndrome." *Pediatrics* Vol. 134 pp. e527 -e534.; Presenting at the Pediatric Academic Society an abstract for second project "Results of dissemination of a Potentially Better Treatment Protocol in Ohio Children's Hospitals"; Third abstract project: "Impact of Polypharmacy and Tobacco exposure on the intensity of treatment"; and New protocol "Impact of morphine and methadone on the QT length in infants with NAS - a safety study."
- What others are saying:
 - *"It is extremely gratifying to see other hospitals adapting the Ohio children's hospitals' treatment protocols related to babies born drug-dependent. We are proud to support this initiative which will help reduce infant mortality in Ohio and throughout the country."* -- George Barrett, Cardinal Health Chairman and CEO

ASTHMA:

- Created the Ohio Pediatric Asthma Repository - the first statewide repository for asthma in US.
 - As of March 2015, nearly 3000 children with asthma have been enrolled. Our state is a model nationwide for how to improve health outcomes for children with asthma. The data highlight the vast variability of treatment practices. Identified significant differences in ED and inpatient practices, ICU usage, discharge and follow-up practices, severity, and length of stay across the hospitals.
- The data collected have identified best practices are being used to design pathways for children with asthma exacerbation. Changes have already been made to the treatment pathways including eliminating medications that do not result in improved outcomes. These changes will translate to substantial cost savings and better outcomes for children with asthma in our state.
- All children received similar treatment regardless of their disease severity or risk including previous hospitalization, highlighting the need for new decision support tools that integrates personalized data from patients. A new innovative tool has been developed that will make critical information about each child's personal asthma risk and severity including biomarkers readily available at the point of care.
 - This will help the clinician choose the right treatment plan for each child and eliminate guess work.
 - 40-70 percent of patients with asthma do not respond well to standard therapy so there is tremendous opportunity for decreasing costs.
- Published (January 2015) in Pediatrics "Heterogeneity in asthma care in a state-wide collaborative: the Ohio Pediatric Asthma Repository," with three additional papers pending publication: "Systems-Level Care Practices and Patient-Level Risks Independently Contribute to Increased Hospital Length of Stay for Pediatric Asthma Exacerbation: the Ohio Pediatric Asthma Repository"; "Obesity and Asthma in Inpatient Setting: the Ohio Pediatric Asthma Repository"; and "Impact of Secondhand Smoke on Inpatient Asthma Practices: the Ohio Pediatric Asthma Repository."
- Our statewide effort is gaining national and international attention. The work was presented at Medical Grand Rounds at the NIH/NIAID, University of Virginia, Charlottesville, and Kansas City Mercy Children's Hospital, as well as at the American Thoracic Society Meeting last year. We have been invited to present the Ohio Pediatric Asthma Repository project at the World Allergy Organization meeting in Spain in June 2015.
- What others are saying:
 - *"It is inspiring to see what can be done on a large scale to improve asthma care for children when a visionary Governor partners with dedicated researchers at children's hospitals. The OPAR work led by Dr. Hershey is not only important for the children of Ohio, but also demonstrates that such an undertaking can succeed, given the right support. Governor Kasich and the State of Ohio set a high standard and serve as a model for those of us working to manage populations of children with asthma and other chronic conditions in our own regions."* --Michael Artman, MD, Joyce C. Hall Distinguished Professor, Pediatrician-in-Chief, Executive Director of Research at Children's Mercy Hospital and Chairman, Department of Pediatrics at University of Missouri-Kansas City School of Medicine University of Kansas School of Medicine
 - *"The information gleaned from such a distinct and innovative effort should go a long way to improving asthma care and health of asthmatic children in Ohio....It is remarkable that the Ohio Governor and authorities are so forward looking regarding the health of Ohio's children. Similar programs have been started in Singapore and South Korea as the beginnings of a Personalized or Precision Medicine approach. None of the International programs are as advanced as the Ohio cooperative."* -- Lanny J. Rosenwasser, M.D., President, World Allergy Organization; Professor of Pediatrics, Allergy-Immunology Division, Children's Mercy Hospital, Kansas City, Missouri; Professor of Pediatrics and Medicine University of Missouri-Kansas City School of Medicine.