

## Unparalleled data and analytic expertise for a large-scale national study

### Highlights

- Optum™ Life Sciences helped The Lewin Group complete a two-year study for the National Institute of Mental Health.
- Rich data assets, combined with analytic expertise, resulted in estimates that may be more generalizable than were previously available.
- The detailed results attracted widespread media coverage domestically and in the U.K.

The National Institute of Mental Health (NIMH) contracted with The Lewin Group<sup>®</sup> to conduct a two-year study to better understand the trajectories of health conditions and utilization of health care services among children with autism spectrum disorders (ASD), their siblings and their parents.

Optum Life Sciences helped fulfill the study objectives by: 1) identifying a large national heterogeneous group of children with and without ASD from its proprietary administrative claims database and validating the claims data-based identification of ASD with a medical chart abstract study; and 2) analyzing claims data to examine a wide range of clinical characteristics and health services and medication consumption among children with and without ASD and their family members. This unprecedented analysis illuminated new insights into ASD — garnering widespread media coverage — and holds promise in advancing clinical and health services knowledge about ASD.

### Challenge

NIMH and The Lewin Group examined a national sample of children with and without ASD and their family members (siblings and parents) to generate a clear picture of the impact of ASD on:

- **Health care utilization and costs** — How do children with and without ASD and their respective families utilize inpatient, outpatient, emergency and other health care services?
- **Psychotropic polypharmacy** — How common is psychotropic polypharmacy, how many overlapping medications are observed for children with ASD, and what types of providers have children with psychotropic polypharmacy seen?
- **Health status** — Are there differences in health status between children with and without ASD and between family members of children with and without ASD?

## Solution

Optum Life Sciences used de-identified medical and pharmacy claims data and enrollment information from our proprietary Optum Research Database, which contains administrative claims data from a large health plan affiliated with Optum back to 1993. Data from January 2001 through December 2009 were used:

- **Medical claims data** — Covered specialty, preventive, office-based, and other services, as well as health plan- and patient-paid amounts, collected from inpatient and outpatient hospital, emergency room, outpatient office, surgery center and other health care sites.
- **Pharmacy claims data** — Drug name, fill date, formulation, strength, quantity supplied, days supply, health plan- and patient-paid amounts.
- **Enrollment information** — Date of health plan enrollment and family identifiers to link children with and without ASD with their family members.
- **Socioeconomic data** — Derived through a match done by the health plan with a marketing database maintained for a large segment of the U.S. population. Data elements include race, ethnicity, homeowner status, occupation type, household income and household net worth. Much of these data are imputed from sophisticated algorithms using enhanced geocoding, predictive modeling, and U.S. Census data. Socioeconomic data were linked with claims data following internal privacy compliance review and approval.
- **Medical chart abstraction data** — Validation of ASD diagnosis was obtained from medical charts for 432 children, ages 2–20, with and without ASD after receipt of Institutional Review Board, Privacy Board, and health plan Research Review Board approvals. Medical chart abstraction data were linked with the claims data of the relevant children.

All study subjects were identified from commercial health plan enrollees who had medical, pharmacy and behavioral health coverage. Six main samples were selected: children with ASD, a comparison group of children without ASD, parents of children with and without ASD, and siblings of children with and without ASD.

## Results

Data and analysis from Optum Life Sciences helped The Lewin Group deliver a compelling, illuminating study that added significant insight to the existing body of knowledge and understanding of health conditions and utilization of health care services among children with ASD, their siblings and their parents. Among the results:

- The claims data-based identification of ASD had a positive predictive value of 87.4% based on the medical chart abstraction.
- Children with ASD had higher health care utilization and costs than children without ASD.
- Children with ASD were more likely to have gastrointestinal disorders and co-occurring neurologic/neurodevelopmental disorders than were children without ASD.
- Children with ASD were more likely to use psychotropic medications (antiepileptics, antidepressants, antipsychotics, anxiolytics, mood stabilizers, medications for attention deficit disorder [ADD] and for Parkinsonism).

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- Among the children with ASD, 64% were treated with  $\geq 1$  psychotropic drug, 35% had concomitant use of  $\geq 2$  psychotropic drug classes, and 15% used  $\geq 3$  psychotropic drug classes concomitantly.
- Children who used psychotropic drugs, compared with those who did not, were older, had higher odds of treatment by psychiatrists, and higher odds of comorbid seizure, ADD, anxiety, bipolar disorder and depression.
- Family members of children with ASD had higher health care utilization than did their comparison groups.
- Parents of children with ASD had significantly higher odds of stress-related conditions relative to comparator parents.

By including a large and heterogeneous group of children with and without ASD, Optum Life Sciences helped The Lewin Group provide estimates and results that may be more precise and generalizable than previously available.

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Data assets and expertise to advance the world's understanding of health conditions and utilization of health care services among children with ASD and their families.

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To learn more about our data assets and expertise and how they can strengthen your work, please contact us at **1-866-306-1321** or **connected@optum.com**, or visit us at **optum.com/life-sciences**.

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2. Lewin is an OptumInsight company. OptumInsight, a wholly-owned subsidiary of UnitedHealth Group, was founded in 1996 to develop, acquire and integrate the world's best-in-class health care information technology capabilities. For more information, visit [optum.com](http://optum.com). The Lewin Group operates with editorial independence and provides its clients with the very best expert and impartial health care and human services policy research and consulting services.



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