Demonstrating product value using robust, complex data

We understand the complexity of using claims and EHR data to demonstrate the value of a product. Our rigorous studies analyze treatment patterns and health outcomes using data from everyday clinical practice to help you understand gaps in care and help payers make important decisions about your product's value. Access to the IBM MarketScan Research Databases, IBM Explorys Therapeutic Datasets Delivered and IBM Micromedex® Complete Drug Interactions offers opportunities for innovative research using complementary data sets. In addition to IBM proprietary databases, we have access to and experience with otherdatabases to use in our research services, including international and public data. Our ability to link a variety of patient-level databases further enhances our capacity to uncover crucial insights to support your value demonstration efforts.

IBM proprietary real-world data includes

IBM MarketScan® Databases
– Commercial, Medicare, and Medicaid claims
– Health and productivity
– Health risk assessment
– Lab results
– Dental
– Benefit plan design
– Hospital drugs
– Weather

IBM Explorys® Therapeutic Datasets Delivered

IBM MarketScan Explorys Claims-EMR Data Set

Types of outcomes research studies

- **Burden of illness**
- **Adherence**
- **Treatment drivers**
- **Comparative effectiveness**
- **Direct and indirect cost analyses**
- **Adverse events and surveillance analysis**
- **Treatment pattern analysis**
- **Impact of pharmacy benefit tiers on medication use**
- **External control arms**
- **Cost sharing and value-based insurance design**

Conducting research in oncology, autoimmune, infectious and rare diseases

Given the size and longitudinal integrity of the MarketScan Research Databases — one of the largest and longest-running proprietary claims databases in the US — and our passion for linking data, we have conducted numerous health economics and outcomes research studies in the areas of oncology, autoimmune, infectious and rare diseases. We have been on the forefront of linking clinical data to de-identified patient-level administrative claims to increase the comprehensiveness of the data we use for our studies.

Our researchers also have significant experience in the evaluation of biologics. We understand the underlying diseases and how to evaluate the efficacy and value of treatments using a variety of data sources. We can link the MarketScan Research Databases with large, integrated formulary databases to help you better understand the impact of patient access on treatment patterns.

Elements of IBM Watson Health real-world data assets

- Patient demographics
- Clinical data
- Vitals and biometrics
- Social history data
- Laboratory and microbiology data
- Prescription information
- Implantable device details
- Assessments and PRO data
- Provider demographic data
- Utilization and direct costs
- Weather data
- Productivity data
- Dental data

Partial list of HEOR publications with Watson Health authorship

Authors in bold are Watson Health researchers. To see a full list of publications, please contact your IBM representative.

Evaluate direct and indirect costs of disease

Bonafede M, Sapra S, Shah N, Tepper S, **Cappell K**, Desai P. Direct and indirect healthcare resource utilization and costs among migraine patients in the United States. *Headache 2018;* 58(5): 700 – 714.

Hepp Z, **Kim G, Lenhart G, Johnson BH.** Absenteeism and indirect economic burden associated with primary and secondary hypogonadism: A retrospective matched cohort analysis of employed, commercially insured patients in the U.S. *Journal of Occupational and Environmental Medicine 2018;* 60(8): 724 – 731.

Song X, Quek RG, Gandra SR, **Cappell KA, Fowler R,** Cong Z. Productivity loss and indirect costs associated with cardiovascular events and related clinical procedures. *BMC Health Services Research 2015;* 15: 245.

Evaluation of adverse events and comorbidities

Irwin DE, Davis B, Bell JA, Galaznik A, Garcia-Ribas I. Gastrointestinal complications in patients treated with ipilimumab and nivolumab combination therapy or monotherapy. *J Comp Eff Res 2019;* 8(2): 81 – 90.

Song X, Gandhi P, **Gilligan AM,** Arora P, Wang C, **Henriques C,** Sander S, **Smith DM.** Comparison of all-cause, stroke, and bleed-specific healthcare resource utilization among patients with non-valvular atrial fibrillation (NVAF) and newly treated with dabigatran or warfarin. *Expert Review of Pharmacoeconomics & Outcomes Research 2019;* 19(2): 213 – 222.

Best JH, **Kong AM, Lenhart GM,** Sarsour K, **Stott-Miller M,** Hwang Y. Association between glucocorticoid exposure and healthcare expenditures for potential glucocorticoid-related adverse events in patients with rheumatoid arthritis. *Journal of Rheumatology 2018;* 45(3): 320 – 328.

Natural history of disease and patient journeys

Kaine J, **Song X, Kim G,** Hur P, Palmer JB. Higher incidence rates of comorbidities in patients with psoriatic arthritis compared with the general population using U.S. administrative claims data. *Journal of Managed Care & Specialty Pharmacy 2019;* 25(1): 122 – 132.

Burton BK, Jones KB, Cederbaum S, Rohr F, Waisbren S, **Irwin DE, Kim G,** Lilienstein J, Alvarez I, Jurecki E, Levy H. Prevalence of comorbid conditions among adult patients diagnosed with phenylketonuria. *Mol Genet Metab 2018;* 125(3): 228 – 234.

Hassan M, **Bonafede MM, Limone BL,** Hodgkins P, Sawicki GS. The burden of cystic fibrosis in the Medicaid population. *Clinicoecon Outcomes Res 2018;* 1 0: 4 23 – 431.

Drivers of treatment and medical care choices

Bonafede MM, Pohlman SK, **Miller JD, Thiel E,** Troeger KA, Miller CE. Women with newly diagnosed uterine fibroids: Treatment patterns and cost comparison for select treatment options. *Population Health Management 2018;* 2 1(S1): S 13 – S20.

Vlahiotis A, Griffin B, Stavros AT, **Margolis J.** Analysis of utilization patterns and associated costs of the breast imaging and diagnostic procedures after screening mammography. *Clinicoecon Outcomes Res 2018;* 1 0: 1 57 – 167.

Impact of policy on utilization and outcomes

Goldstein M, Krilov LR, Fergie J, McLaurin KK, Wade SW, **Diakun D, Lenhart GM,** Bloomfield A, **Kong AM.** Respiratory syncytial virus hospitalizations among US preterm infants compared with term infants before and after the 2014 American Academy of Pediatrics Guidance on Immunoprophylaxis: 2012- 2016. *Am J Perinatol 2018;* 35(14): 1433 – 1442.

Huskamp HA, Samples H, Hadland SE, McGinty EE, **Gibson TB,** Goldman HH, Busch SH, Stuart EA, Barry CL. Mental health spending and intensity of service use among individuals with diagnoses of eating disorders following federal parity. *Psychiatric Services 2018;* 69(2): 217 – 223.

Thornhill MH, **Gibson TB, Cutler E,** Dayer MJ, Chu VH, Lockhart PB, O'Gara PT, Baddour LM. Antibiotic prophylaxis and incidence of endocarditis before and after the 2007 AHA Recommendations. *J Am Coll Cardiol 2018;* 72(20): 2443 – 2454.

Impact of pharmacy on formulary benefits and adherence

Stokes M, Reyes C, Xia Y, Alas V, Goertz HP, **Boulanger L.** Impact of pharmacy channel on adherence to oral oncolytics. *BMC Health Services Research 2017;* 17(1): 414.

Gatwood J, **Gibson TB,** Chernew ME, **Farr AM,** Vogtmann E, Fendrick AM. Price elasticity and medication use: cost sharing across multiple clinical conditions. *Journal of Managed Care Pharmacy 2014;* 20(11): 1102 – 7.

Palmer L, Abouzaid S, **Shi N, Fowler R, Lenhart G,** Dastani D, Kim E. Impact of patient cost sharing on multiple sclerosis treatment. *American Journal of Pharmacy Benefits 2012;* 4 (Special Issue): SP28 – SP36.

For more information

To learn how our outcomes researchers and data can help you conduct your research studies, please visit ibm.com/life-sciences or contact us at WatsonH@us.ibm.com.

About IBM Watson Health

Each day, professionals throughout the health ecosystem make powerful progress toward a healthier future. At IBM Watson Health, we help them remove obstacles, optimize efforts and reveal new insights to support the people they serve.

Working across the landscape, from payers and providers to governments and life sciences, we bring together deep health expertise, proven innovation and the power of artificial intelligence to enable our customers to uncover, connect and act — as they work to solve health challenges for people everywhere.

For more information on IBM Watson Health, visit ibm.com watsonhealth.