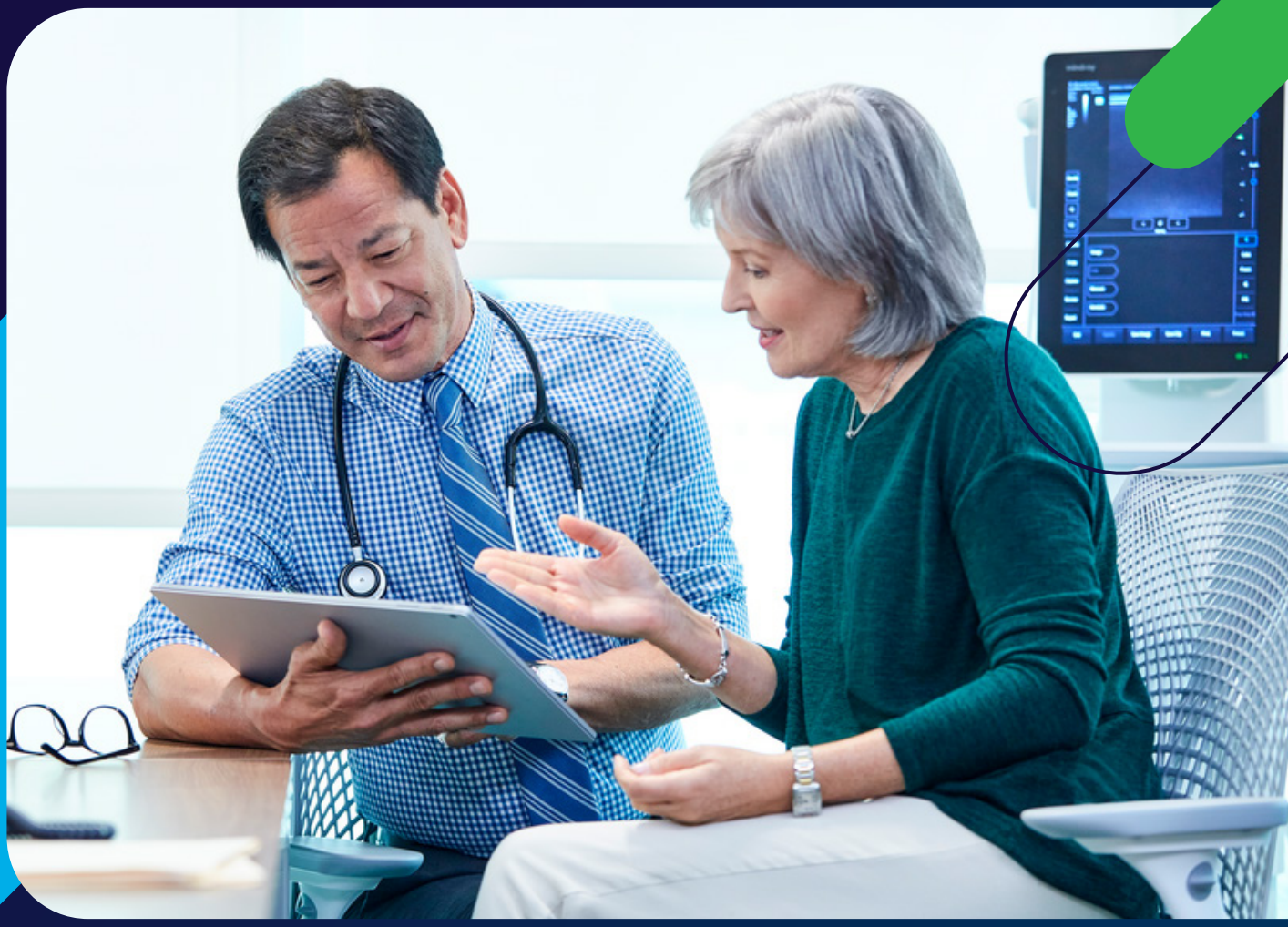

Unlocking the Value of Health Information

Published IQVIA expertise across therapy areas and methodologies

Advancing evidence-based healthcare

Healthcare-related research is increasingly driven by analyses that draw from real world evidence to reveal the effectiveness of treatments beyond the clinical trial phase. The success of that approach is predicated not only on the availability of the necessary data from various sources, but on the ability to connect and analyze data across different healthcare systems.

As a trusted healthcare partner and neutral authority, IQVIA supports rigorous research with timely and accurate health information.

Researchers collaborating with IQVIA utilize our databases and analytical tools to enhance the effectiveness and efficiency of the healthcare system. This exemplifies what we mean by unlocking the value of health information.

Payers and stakeholders are increasingly looking at Real World Evidence and data-driven insights to inform decision making. Drawing upon the broadest and deepest real world data that reflects the Canadian and global treatment environments, data scientists, epidemiologists, and clinical experts have supported rigorous, evidence-based research for life sciences, governments, researchers and academics, as well as medical and pharmacy associations. This document features the work of IQVIA Real World Evidence Solutions experts in Canada, including the use of real world data assets. It lists abstracts, articles and scientific posters presented at various health industry conferences in Canada.

Offering the world's largest source of curated healthcare data, IQVIA provides pan-Canadian data that covers both the public and private sector. Better use of health information by various stakeholders could support three objectives:

- Serve as tools to support effective decision making based on real world evidence
- Ensure maintenance of best practices
- Allow exploration of new research pathways

IQVIA Canada Bibliography:

Published real-world expertise across therapy areas and methodologies

2024

Healthcare utilization and cost of metabolic dysfunction-associated steatotic liver disease (MASLD) in Ontario, Canada: An observational study

The aim of this study is to describe the healthcare resource utilization (HCRU) and direct healthcare costs of persons with MASLD (PwMASLD) in Ontario, Canada, and further describe specific subgroups of patients diagnosed with MASLD only, MASH, and cirrhosis. This retrospective observational study identified PwMASLD in Ontario using administrative health records at ICES. Conclusions: Annual use of healthcare services and costs were higher among PwMASLD compared to controls. Utilization and costs increased with disease progression from MASLD to MASH to cirrhosis. PwMASLD with liver and/or cardiovascular health outcomes also had over twice the HCRU and costs compared to those without. Early diagnosis and appropriate intervention should be implemented to delay or prevent disease progression and alleviate the economic burden of MASLD.

Keyur Patel MD PhD, University Health Network; Diego Moreno Baca BSc, Natalia Konstantelos PhD, Novo Nordisk Canada Inc.; Ginnie Ng PhD, Urja Lathia MSc, IQVIA Solutions Canada Inc.

Experiences, considerations, and healthcare opportunities of adolescents living with obesity and caregivers in Canada: Results from the ECHO-Teens survey

Aim: Describe the experiences, considerations, and healthcare opportunities related to obesity management and healthcare decision-making of ALwO from the perspectives of ALwO themselves and caregivers of ALwO in Canada. ALwO and caregivers of ALwO each completed an online survey between June 19 and August 23, 2024. The ability of ALwO to manage obesity is impacted by limited resource availability and healthcare system support. Key areas for interventions to improve ALwO care include: Increasing accessibility and availability of clear and up-to-date educational support; initiatives supported by social media, institutions, and authorities to combat weight-related stigma and misconceptions around obesity management; Increasing access to allied healthcare teams, services and clinics, and support groups will help ALwO to build trusting relationships and reframe negative emotions related to obesity management.

Geoff D C Ball PhD RD, Department of Pediatrics, University of Alberta; Ian Patton PhD, Obesity Canada; Reena Lavji MPharm RPh, Rachel Anisman PharmD RPh, Medical Affairs, Novo Nordisk Canada Inc.; Ginnie Ng PhD, Lorelai Loreto MD MSc, IQVIA Solutions Canada Inc.

Experiences, considerations, and healthcare opportunities of adolescents living with obesity from the perspective of healthcare providers in Canada: Results from the ECHO-Teens Survey

Aim: Describe the experiences, considerations, and healthcare opportunities related to obesity management and healthcare decision-making of ALwO from the perspective of HCPs in Canada. HCPs completed an online survey between June 19 and August 23, 2024. While findings highlight the positive impact of obesity management training, results also showcased the low rates of obesity training among HCPs in Canada and the urgent need for updated resources. The prescription of advanced obesity management interventions is limited by resource availability and accessibility. Key areas for interventions to better support ALwO care include: Facilitating educational resources and medical training for HCPs on managing obesity among ALwO, including CME events, conferences, and updates on CPG for Pediatrics; having accessible tools for HCPs, to share with ALwO and caregivers, to alleviate hesitancy in trying new strategies when appropriate.

Geoff D C Ball PhD RD, Department of Pediatrics, University of Alberta; Ian Patton PhD, Obesity Canada; Reena Lavji MPharm RPh, Rachel Anisman PharmD RPh, Medical Affairs, Novo Nordisk Canada Inc.; Ginnie Ng PhD, Lorelai Loreto MD MSc, IQVIA Solutions Canada Inc.

Healthcare utilization associated with obesity management in Ontario, Canada

This study aimed to describe the characteristics, healthcare resources utilized, and costs incurred by adults receiving publicly funded obesity care in Ontario, Canada. People living with obesity who first visited Wharton Medical Clinic, a weight and diabetes management clinic in Ontario, between 2015 and 2018 were identified. Common obesity-related complications were hypertension (42.62%), musculoskeletal pain (35.20%) and dyslipidemia (33.65%). Participants had 22.16 physician visits per person-year in year one, mostly to general practitioners and endocrinologists, which decreased to 17.38 visits per person-year by year three. Mean total costs (excluding privately covered prescriptions) per person-year decreased from $5227.25 (Canadian dollars) (SE: $0.97) to $4982.88 (SE: $2.16) over the same period.

Novo Nordisk Canada Inc; Artis Luguzis, Maria Eberg, Atif Kukaswadia, Calum S. Neish, IQVIA

Comparison of administrative burden associated with Kesimpta and Ocrevus among Multiple Sclerosis (MS) clinics in Canada

The purpose of this study was to evaluate differences in administrative burden between ocrelizumab and ofatumumab at several MS clinics across Canada. HCPs from MS clinics located in provinces representing more than 75% of the Canadian population (Alberta, Ontario, Quebec, and New Brunswick) participated in a cross-sectional survey that collected data on 12 months of recent administrative interactions for patients with Relapsing Remitting MS (RRMS) treated with fatumumab or ocrelizumab. HCPs spent 30% less time on administrative interactions for ofatumumab patients compared to those on ocrelizumab, likely associated with differences in the therapies' pre-treatment requirements (e.g., lab work to be completed prior to each dose) and route of administration. When extrapolating the findings of this research to a larger scale through a scenario model, the research suggest that having a higher proportion of patients on ofatumumab can limit the number of administrative interactions and reduce the total time spent on administrative tasks, leading to cost and resource savings for the clinic.

Szymczak M, Perron B, Gaboury H, Grant R, Paron L, Novartis Pharmaceuticals Canada Inc.; Dsouza D, Tan C, Murray J, Neish CS, IQVIA Solutions Canada Inc.

Effectiveness of brodalumab in patients with plaque psoriasis in the Canadian real-world setting: 6-month follow-up interim results from the CARE study

The CARE study aims to describe the real-world outcomes of brodalumab in adult patients with moderate-tosevere PsO

In Canada. The objective of this interim analysis was to describe the effectiveness of brodalumab in patients with PsO up

to 6 months post-initiation. CARE is an ongoing Canadian multi-center, 12-month prospective, observational study in adult patients with PsO who initiated brodalumab as part of routine clinical care between October 2021 and February 2024. Study visits are conducted at baseline, and then 3, 6, and 12 months post-brodalumab initiation. Adult patients with moderate to severe PsO observed rapid improvements in psoriasis signs and symptoms after 3 months of brodalumab therapy that were sustained or increased after 6 months.

Mohammed Bawazir, Jaggi Rao, North York Research Inc.; Charles Lynde, Lynderm Research Inc.; Firouzeh Niakosari, SKiNWISE Dermatology a nd Wiseman Dermatology Research; Marni Wiseman, University of Manitoba, Section of Dermatology, Department of Medicine, University of British Columbia, Department of Dermatology and Skin Science; Sunil Kalia, Alberta Derma Surgery Centre, Veronique Gaudet, Martin Barbeau, Maxime Barakat, Bausch Health, Canada Inc.; Shoshannah Kalson-Ray, Maddy Liu, Calum Neish, Sabitha Rajaruban, IQVIA Inc.

Effectiveness and safety of brodalumab in patients with plaque psoriasis with and without psoriatic arthritis in the Canadian real-world setting: 6-month follow-up interim results from the CARE study

The CARE study aims to evaluate real-world outcomes of brodalumab amongst adult patients with PsO in Canada. The objective of this interim analysis was to describe the effectiveness and safety of brodalumab in PsO patients with and without PsA at 6 months post-initiation (M6). CARE is an ongoing Canadian multi-center, 12-month prospective, observational study in adult PsO patients who initiated brodalumab between October 2021 and February 2024 as part of routine care. Brodalumab effectiveness was evaluated with the physician-assessed Psoriasis Area and Severity Index (PASI) and Static Physician's Global Assessment (sPGA) scores, and safety was evaluated with rates of adverse events (AEs), serious adverse events (SAEs) and treatment persistence. Conclusion: PsO patients with and without PsA showed improvements in psoriasis signs. Few patients experienced adverse events, and most were persistent on brodalumab treatment for six months following initiation.

Danielle Brassard, Fiona Lovegrove, Clinique D; Maksym Breslavets, Centre for Medical and Surgical Dermatology; Kyle Cullingham, Saskatoon Dermatology Centre; Maryam Shayesteh Alam, SimcoDerm Medical and Surgical Dermatology Centre; Fiona Lovegrove, Lovegrove Dermatology; Hélène Veillette, Diex Recherche Quebec; Veronique Gaudet, Martin Barbeau, Maxime Barakat, Bausch Health, Canada Inc.; Maddy Liu, Shoshannah Kalson-Ray, Joshua Trivlidis, Calum Neish, IQVIA Inc.

Safety and treatment persistence of brodalumab in patients with plaque psoriasis in the Canadian real-world setting: 6-month follow-up interim results from the CARE study

The CARE study aims to evaluate the real-world outcomes of brodalumab amongst adult patients with PsO in Canada. In this interim analysis, we aim to describe brodalumab safety and treatment persistence (i.e., patients who remained on treatment) up to 6 months post-initiation. CARE is an ongoing multi-center, 12-month prospective, observational study in adult PsO patients who initiated brodalumab between October 2021 and February 2024 as part of routine care in Canada. Study visits are conducted at baseline, and then at 3, 6, and 12 months post-brodalumab initiation. Conclusion: Treatment persistence was high with brodalumab and well tolerated with few serious AEs reported during the 6-month follow-up period.

Parbeer Grewal, Jessica Asgarpour, Rejuvenation Dermatology; Dusan Sajic; Guelph Dermatology Research; Raed Alhusayen, DermCare Clinic; Sunil Kalia, Vancouver Coastal Health Research Institute; Marni Wiseman, SKiNWISE Dermatology and Wiseman Dermatology Research; Steve Mathieu, Alpha Recherche Clinique; Veronique Gaudet, Martin Barbeau, Maxime Barakat, Bausch Health, Canada Inc.; Maddy Liu, Shoshannah Kalson-Ray, Joshua Trivlidis, Calum Neish, IQVIA Inc.

Canadian physicians' perceptions and experiences with cabotegravir and rilpivirine long-acting antiretroviral therapy: Preliminary results from a cross-sectional survey

This study describes the real-world experience of Canadian physicians prescribing CAB+RPV LA, focusing on acceptability, convenience, and perceived barriers to CAB+RPV LA treatment. Physicians across Canada who treat ≥50 people with HIV and routinely prescribe CAB+RPV LA completed an online survey regarding perceptions of, and experiences with, CAB+RPV LA (window of recruitment: September 2023-February 2024). Understanding the current physician experience of prescribing CAB+RPV LA is important for optimal implementation of long-acting HIV treatments in practice and improving the experience of people with HIV. This real-world data (to date) from a small sample of Canadian physicians indicates a positive overall opinion, successful integration, and benefits of CAB+RPV LA.

Adenike R. Adelakun, Joann K. Ban, GSK Canada; Shoshannah Kalson-Ray, Tanya Patrawala, Maria Eberg, Maria Esther Perez Trejo, Johanna Mancini, Fahmida Yeasmin, IQVIA Canada; Elaine Stewart, ViiV Healthcare; Mona Loutfy, Women's College Hospital, University of Toronto, Maple Leaf Medical Clinic.

D3 Interim results for myasthenia gravis-resource utilization, epidemiology, survival & treatment patterns (MG-REST) study in Ontario, Canada

Given the lack of recent Canadian data on MG disease burden, the MG-REST Study aims to estimate the clinical burden of MG in Ontario. Methods: Ontario administrative data from ICES were utilized for a retrospective population-based cohort study of adults with MG identified through a validated algorithm (April 2013-March 2019) and followed for up to seven years (March 2020) to determine myasthenic crisis characteristics and overall survival (OS). Despite the availability of conventional therapies throughout the study, MG crisis remains a serious, common complication of MG, with decreased survival at 1-year post-crisis (29% difference versus 1-year OS following MG diagnosis). Study highlights MG burden and unmet need for new effective therapies for MG treatment. Published online Canadian Journal of Neurological Sciences , Volume 51 , Supplement s1: ABSTRACTS: Canadian Neurological Sciences Federation (CNSF) 2024 Congress , June 2024 , pp. S9

C Barnett-Tapia, K Quansah, A Erman, R Ng, N Nath, A Sharma, IQVIA Canada

Benchmarking CDA submissions, pCPA negotiations, and time-to-listing processes in Canada for drugs for rare diseases

As the government enacts the National Strategy for Drugs for Rare Diseases, it is valuable to examine the market access metrics of DRDs to help benchmark efforts in improving access for DRDs. This study aims to use a data-driven approach to assess if overall time-to-listing and market access outcomes are different for DRDs and non-DRDs. DRDs have longer median time-to-listing compared to non-DRDs both overall (607 days vs 414 days) and for cumulative median times across all steps (560 days vs 489 days). Proportion of CDA reviews with listing in at least 1 province was also lower for DRDs (60% vs 68%) which suggests potential challenges for public payers to include DRDs into their formularies. It remains to be seen if these metrics would improve for DRDs given the implementation of the National Strategy for Drugs for Rare Diseases.

Scott Shi, PharmD MBA, Juejing Ling, MSc, Marc Lapierre, Ali Tehrani, Brad Millson, MBS, IQVIA Canada

Tracking real-world advanced melanoma treatment patterns and trends post-reimbursement

Recent clinical trials such as DREAM-seq and SECOMBIT provide guidance on the sequencing of immunotherapies and BRAF-targeted treatments, however real-world usage and adoption information is limited. The study is to determine real-world treatment patterns and trends using patient-level data collected from chart audits of oncologists who treat advanced melanoma across Canada. This cross-sectional, retrospective chart study leveraged IQVIA's OPO data collection platform. Real-world treatment patterns reflect adoption of sequencing immunotherapy ahead of targeted therapy as suggested by recent melanoma clinical trials (DREAM-seq and SECOMBIT) and can inform ongoing and future HTA submissions. Further evaluation of clinician behavior will be important in understanding the real-world usage of treatments post-reimbursement.

Madeline Tong, PhD, Scott Shi, PharmD MBA, , Sergey Muratov, PhD MD, Callahan LaForty MSc, Arushi Sharma, IQVIA Canada

Identifying spasticity treatment gaps in long-term care and community settings from Ontario real-world evidence

Post-stroke spasticity (PSS) is a debilitating condition that may be undertreated in patients in long-term care (LTC) facilities. This study evaluated gaps in care for PSS in LTC and community settings in Ontario, Canada. This claims database analysis of patients treated for post-stroke focal spasticity in Ontario revealed a large, undertreated population not receiving BoNT/A therapy and a long time lag between LTC admission and treatment with BoNT/A. These findings highlight the need to increase access to PSS treatment to help reduce patient and caregiver burden. Published in Canadian Health Policy, SEP 2024. https://doi.org/10.54194/EZWT5430. canadianhealthpolicy.com

Khan, Omar D, Cathy Vo, Hotel Dieu Shaver Health and Rehabilitation Centre; Huijuan Yang, Shoghag Khoudigian-Sinanic, Bradley Millson, IQVIA Canada; Riccardo Pedersini, Noesis Healthcare Technologies; Galit Kleiner, Baycrest Movement Disorders Clinic

Access to CAR T-cell Therapy: Barriers in referring and treating patients in Canada

Despite the demonstrated benefits, there remains a significant barrier to accessing CAR T-cell treatments in Canada. High cost to healthcare system, limited manufacturing, hospital capacity and limited short-term data are some of key access barriers of CAR T-cell treatments. This research aimed to assess physician perceived barriers to patient referral and CAR T-cell treatment in Canada. Lack of knowledge among referring physicians and limited communication from CAR T centres contribute to consultation and treatment delays. Patient disease progression during this delay may lead to ineligibility for CAR T-cell therapy. Improved education and tools to assess patient eligibility among referring physicians can mitigate the burden on CAR centres and patients. This can in turn improve patient education about CAR T-cell treatment and process prior to referral. Further, increased communication and collaboration between referring and treating physicians can optimize the patient journey and improve CAR T therapy accessibility.

Tara Bourgoin, Arushi Sharma, Purva Barot, IQVIA Canada

Costs of hospitalizations due to respiratory syncytial virus (RSV) illness among children and adolescents in Ontario, Canada

The aim of this study was to understand the economic burden of hospitalizations due to RSV infections in children and adolescents ≤17 years old in Ontario. This was a retrospective, observational study using provincial administrative data on hospitalizations due to RSV infections in children and adolescents ≤17 years of age in Ontario. This study used provincial administrative healthcare data from ICES, which captures all healthcare encounters within Ontario's publicly funded healthcare system. Hospitalizations of young children and adolescents due to RSV pose a substantial burden to the healthcare system, with costs comparable to those of the most expensive medical conditions or patient groups. These findings underscore the importance of preventative measures to mitigate this burden.

Alexandra Goyette, Sazini Nzula, Deshayne B. Fell, Ana Gabriela Grajales, Pfizer Canada; Ceryl Tan, Natalie Nightingale, Maria Esther Perez Trejo, Calum S. Neish, IQVIA Canada

Impact of the COVID-19 pandemic on hospitalizations associated with respiratory syncytial virus (RSV) illness among children and adolescents in Ontario, Canada

The aim of this study is to provide evidence on the burden of hospitalizations due to RSV infections in children and adolescents ≤17 years old in Ontario and understand changes in patterns of RSV-associated healthcare utilization following COVID-19 measures. This is a retrospective, observational study using provincial administrative data on hospitalizations due to RSV infections in children and adolescents ≤17 years of age in Ontario. The typical seasonality pattern of RSV infections was disrupted during the COVID-19 pandemic, with the RSV season starting unusually early and hospitalization counts more than doubling in the 2022/2023 season. The impact of pandemic measures on RSV hospitalizations were substantial, with most of the consequences observed in 2022-23. Study findings suggest that older children were more impacted by the recent changes in RSV trends, accounting for a larger share of total hospitalizations, and it is still unclear when pre-pandemic patterns will resume.

Sazini Nzula, Alexandra Goyette, Deshayne B. Fell, Ana Gabriela Grajales, Pfizer Canada; Ceryl Tan, Natalie Nightingale, Maria Esther Perez Trejo, Calum S. Neish, IQVIA Canada

Hospitalizations associated with respiratory syncytial virus (RSV) illness among children and adolescents in Ontario, Canada

The aim of this study was to provide evidence on the burden of hospitalizations due to RSV infections in children and adolescents ≤17 years old in Ontario, expanding the focus to include a broader age range to gather insights on older pediatric populations that are often under-studied. This was a retrospective, observational study using provincial administrative data on hospitalizations due to RSV infections in children and adolescents ≤17 years of age in Ontario. Provincial administrative data were gathered from ICES, which captures all healthcare encounters within Ontario's publicly funded healthcare system. This study highlighted those who may be more impacted by RSV illness: younger infants, those born prematurely or with a low birthweight, and with underlying risk conditions. While most hospitalizations were observed in those <12 months, older children are at higher risks of severe outcomes from RSV hospitalization, especially those with risk conditions.

Sazini Nzula, Alexandra Goyette, Deshayne B. Fell, Ana Gabriela Grajales, Pfizer Canada; Ceryl Tan, Natalie Nightingale, Maria Esther Perez Trejo, Calum S. Neish, IQVIA Canada

Biomarker testing patterns and turnaround times in Canadian advanced non-small cell lung cancer

The objectives of this study were to describe biomarker testing rates in mNSCLC by region in Canada and by practice setting; to describe the average turnaround time to receive testing results by biomarker by region in Canada and by practice setting; and to describe timing of biomarker testing in mNSCLC (i.e., at diagnosis, at progression on first-line therapy. A repeated cross-sectional study was conducted between October 2022 and March 2024 using IQVIA's Oncology Patient Outcomes platform. We extracted physician and patient demographics, biomarker testing, and testing results turnaround time for this analysis. Health system improvements to reduce turnaround times and improve accessibility to testing for emerging biomarkers would facilitate equal access to timely testing and appropriate treatment selection for all patients. We combined multiple consecutive quarters of data to evaluate temporal trends in biomarker testing in mNSCLC. Overall testing rates for established biomarkers are high in mNSCLC. Further understanding of patient populations who are not tested may improve access to targeted therapies.

Lidija Latifovic, Ryan Ng, Scott Shi, Callahan LaForty, Arushi Sharma, IQVIA Solutions Canada Inc.

Access to drugs for rare diseases (DRDs) in Canada: Health Canada approvals and public coverage

Drugs for Rare Diseases (DRDs) are critical given the estimated 1 in 12 Canadians with a rare disease. Currently, the total number of DRDs approved in Canada and their public coverage status is unknown. This study aims to quantify the number of DRDs approved and marketed in Canada, and their public coverage status. Over the 23-year study period, 352 DRDs have been approved by Health Canada and are currently marketed. Annual DRD approvals more than doubled from 2000-2012 (median: 9.0 per year) to 2013-2023 (median: 21.0 per year). This study quantifies the DRDs available to Canadian patients over the past 23 years. Although the number of DRDs approved over time has increased, less than half of DRDs have coverage in all provinces. Furthermore, there are coverage disparities across categories of DRDs, with pediatric DRDs having the lowest levels of coverage in all provinces.

Natalia Konstantelos, Juejing Ling, Scott Shi, Ali Tehrani, IQVIA Canada

Literature review and physician interviews highlight the unmet need in Canadian patients with FLT3-ITD+ acute myeloid leukemia

This research aimed to conduct comparative assessment of Canadian epidemiological landscape and treatment practices for AML and collect real world perspectives from Canadian hematologists treating FLT3-ITD-mutated AML patients. AML incidence rate in Canada is comparable to other national estimates. A targeted literature review was conducted to identify domestic and international data on AML epidemiology and clinical guidelines. To gain both quantitative and qualitative insights from Canadian practicing hematologists treating in FLT3-ITD-mutated AML, primary market research was conducted using telephone depth interviewing (TDI). Following data collection, results across 5 hematologists interviews were anonymized and aggregated. Genetic testing for FLT3 is available across Canada and used in routine practice to identify relevant patients. Improved treatment options for FLT3-ITD-mutated AML to address the unmet needs of higher risk of relapse and shorter overall survival among this population will be required to improve outcomes for patients, especially in the maintenance phase.

Yulia Privolnev, Daiichi Sankyo Pharma Canada; Nikhil Nath, Cristian Iconaru, Tara Bourgoin, Arushi Sharma, IQVIA Canada

Seasonal trends in incidence and in-hospital mortality of hospitalization due to all-cause community acquired pneumonia (CAP) and pneumococcal cap (pCAP) in Canada, 2009/10-2018/19

This retrospective, observational study aims to describe the IR and in-hospital mortality due to all-cause CAP and pneumococcal CAP (pCAP) hospitalizations in Canadian adults from April 1, 2009 to March 31, 2019, stratified by season, as captured through the Canadian Institute for Health Information's (CIHI) administrative databases. Data was obtained from CIHI's DAD, NACRS, and the CMDB databases, containing hospitalization data from all provinces, except Quebec. The burden of illness of individuals hospitalized with CAP in Canada is considerable and independent of season. Incidence rates and in-hospital mortality in summer months were found to be equivalent or slightly lower when compared to winter months. Interventions that prevent CAP may reduce morbidity and mortality in older populations.

Ana Gabriela Grajales Beltrán, Derek Lytle, Gokul Raj Pullagura, Pfizer Canada ULC; Jelena Vojicic, Alejandro Cane, Shane Golden, Juejing Ling, Seth Kadis, Brad Millson, IQVIA

Cost-effectiveness of weight-management pharmacotherapies in Canada: a societal perspective

This study aimed to assess the cost-effectiveness of weight-management pharmacotherapies approved by Canada Health, i.e., orlistat, naltrexone 32 mg/bupropion 360 mg (NB-32), liraglutide 3.0 mg and semaglutide 2.4 mg as compared to the current standard of care (SoC). Analyses were conducted using a cohort with a mean starting age 50 years, body mass index (BMI) 37.5 kg/m2, and 27.6% having type 2 diabetes. Conclusion: Semaglutide 2.4 mg was the most cost-effective treatment alternative compared with D&E or orlistat alone, and extendedly dominated other pharmacotherapies such as NB-32 or liraglutide 3.0 mg. Results were sensitive to the inclusion of the combined benefits of mortality, cancer, CVD, and knee osteoarthritis. Published in Int J Obes (Lond). 2024 Jan 31. doi: 10.1038/s41366-024-01467-w. Epub ahead of print. PMID: 38291203.

Anamaria-Vera Olivieri, Sergey Muratov, IQVIA; Sara Larsen, Maria Luckevich, Katalina Chan, Novo Nordisk; Mark Lamotte, IQVIA Belgium; David C W Lau, Department of Medicine, University of Calgary Cumming School of Medicine

Smart connected insulin dose monitoring technologies versus standard of care: a Canadian cost-effectiveness analysis

This study aimed to evaluate the cost-effectiveness of smart connected insulin re-usable pens or caps for disposable insulin pens versus pens without connected capabilities in the management of adult patients with Type 1 diabetes (T1DM) from a Canadian societal perspective. The IQVIA Core Diabetes Model was utilized to conduct the analyses. Conclusion: For adults with T1DM in Canada, a connected insulin pen device is likely to be a cost-effective treatment option associated with greater clinical benefits and lower costs relative to a standard re-usable or disposable pen.

Katalina Chan, Kåre Hansen, Novo Nordisk; Sergey Muratov, Shoghag Khoudigian, IQVIA, Mark Lamotte, Th(is)2Modeling bv (Belgium)

Real-world outcomes of mepolizumab for the treatment of severe eosinophilic asthma in Canada: an observational study

The impact of mepolizumab in a real-world, publicly funded healthcare setting is unknown. The objective of this study was to describe the demographics and clinical characteristics of real-world patients receiving mepolizumab, and to compare asthma-related outcomes and associated asthma-related costs before and during mepolizumab use. This retrospective, observational study in Ontario, Canada, included patients initiating mepolizumab between February 2016 and March 2019. In a real-world population of Canadian patients with severe asthma with an eosinophilic phenotype, the use of mepolizumab within a patient support program reduced asthma exacerbations and decreased asthma-related healthcare resource utilization and associated costs. Published online in Allergy Asthma Clin Immunol 20, 11 (2024). https://doi.org/10.1186/s13223-023-00863-7

Kenneth R. Chapman, Asthma & Airway Centre, University Health Network; Kathryn Cogger, Erin Arthurs, GSK; Callahan LaForty, Shane Golden, Bradley Millson, IQVIA, Koyo Usuba, GSK; Christopher Licskai, Western University

Patient discharge pathways for primary hospitalization and readmission cases due to all-cause community-acquired pneumonia (CAP) in Canada

This study assessed the patient discharge pathway following primary hospitalization or hospital readmission due to all-cause CAP in patients aged ≥ 50 years in Canada, as captured through administrative databases. Data were obtained from CIHI's DAD, NACRS, and CMDB databases, containing hospitalization data from all provinces, except Quebec. CAP results in a significant burden of hospitalization and readmission, not only for individuals aged 65 years or older, but also for those aged 50-64 years. Interventions that prevent or protect against CAP in these older, at-risk populations, such as pneumococcal immunization programs, may reduce the burden on long-term care resulting from CAP hospitalization.

Ana Gabriela Grajales Beltrán, Derek Lytle, Gokul Raj Pullagura, Pfizer Canada; Jelena Vojicic, Alejandro Cane, Pfizer Inc.; Shane Golden, Juejing Ling, Seth Kadish, Brad Millson, IQVIA

Evaluating the lorlatinib patient support program Real-World Evidence (RWE) project in the context of ADTH's guidance for reporting RWE: What constitutes robust RWE?

To evaluate alignment between the completed lorlatinib Patient Support Program (PSP) RWE project (i.e., design, methodology, analysis, and reporting) initiated in 2020 and published in 2023 against Canada's Drug and Health Technology's (CADTH) RWE Guidance Checklist published in 2023. Despite not having a reference checklist at the time of RWE project conception, our assessment suggests that the novel study design and reporting of the study were in alignment with best practices, thereby facilitating optimal RWE evaluation. Along with robust project execution, collaboration with multiple stakeholders including physician Key Opinion Leaders (KOLs) in anaplastic lymphoma kinase (ALK) positive non-small cell lung cancer (ALK+ NSCLC) and patients with ALK+ NSCLC led to the generation of novel Canadian RWE for lorlatinib and a peer-reviewed publication.

Fiorella Fanton-Aita, Ryan Ng, Shoghag Khoudigian, Arushi Sharma, IQVIA Canada; Martin Rupp, Phu Vinh On, Pfizer Canada

Early real-world experience with Abrilada within the Canadian patient population

The goal of this study was to describe the experience of patients on ADL-afzb, including demographics, previous biologic use, persistence, and adherence. As part of post-registration efforts, it is important to gather additional real-world data to enhance our understanding of ADL-afzb in clinical practice. Our findings suggest high persistence and adherence rates for patients receiving adalimumab-afzb in a real-world setting. Further studies are needed to determine the persistence and adherence of adalimumab biosimilars over an extended duration.

You-Li Ling, Ann Wicker, David Gruben, Pfizer Inc.; Remy Pollock, Pfizer Canada; Gabrielle Houle, Muthu KG Jayakumar, Ali Tehrani, IQVIA Canada; Mark Latymer, Pfizer Ltd.

Epidemiology and healthcare resource utilization of Osteogenesis Imperfecta in Ontario, Canada

Aim: To use real-world data to estimate the prevalence of OI and describe clinical characteristics, healthcare resource utilization (HCRU), and direct healthcare costs of patients with OI in Ontario, Canada. A retrospective observational study was conducted using administrative health data in Ontario, Canada held by a not-for-profit health research corporation, ICES. This study estimates OI prevalence in Ontario at almost 4 cases per 100,000, with fractures most prevalent among young children. Due to the limited capture of diagnoses in administrative health data, prevalence of OI and fracture rates are likely underestimated. Patients with OI experience significant complications, namely fractures, and with no approved treatments available this poses significant burden to patients and the healthcare system.

Erru Yang MS, Pinay Kainth PhD, Ultragenyx Pharmaceutical Inc.; Saranya Nair PhD, Natalie Nightingale MSc, IQVIA Canada; Sophia Rodopoulou PhD, IQVIA Athens

Identifying Ontarians with Type 2 Diabetes Mellitus in administrative data: A comparison of two case definitions

This study compared two previously validated sensitive and specific diabetes case definitions to explore the impact of different classification methods in Ontario ICES administrative data. This study included patients captured by the Ontario Diabetes Database with type 2 diabetes using either the sensitive cohort definition (≥2 physician visits for diabetes within 1 year or ≥1 drug claim for diabetes or ≥1 hospitalization with diabetes), or the specific cohort definition (≥3 physician visits for diabetes within 1 year), between October 1, 2013 to September 30, 2015. Although sample sizes were different between sensitive and specific cohorts, demographic and clinical characteristics were similar. Houlden, R.L., Thayalan, N., Shi, S. et al. Identifying Ontarians with Type 2 Diabetes Mellitus in Administrative Data: A Comparison of Two Case Definitions. Diabetes Ther 15, 677–689 (2024). https://doi.org/10.1007/s13300-024-01535-4

Nilasha Thayalan, Robyn L. Houlden, Division of Endocrinology, Queen's University; Scott Shi, Atif Kukaswadia, IQVIA; Godfrey Mau & Aiden Liu, Novo Nordisk

Smart connected insulin dose monitoring technologies versus standard of care: a Canadian cost-effectiveness analysis

This study aimed to evaluate the cost-effectiveness of smart connected insulin re-usable pens or caps for disposable insulin pens versus pens without connected capabilities in the management of adult patients with Type 1 diabetes (T1DM) from a Canadian societal perspective. The IQVIA Core Diabetes Model was utilized to conduct the analyses. Conclusion: For adults with T1DM in Canada, a connected insulin pen device is likely to be a cost-effective treatment option associated with greater clinical benefits and lower costs relative to a standard re-usable or disposable pen. Chan K, Hansen K, Muratov S, Khoudigian S, Lamotte M. Smart connected insulin dose monitoring technologies versus standard of care: a Canadian cost-effectiveness analysis. J Comp Eff Res. 2024 Mar;13(3):e230124. doi: 10.57264/cer-2023-0124. Epub 2024 Jan 11. PMID: 38205726; PMCID: PMC10945415.

Katalina Chan, Kåre Hansen, Novo Nordisk; Sergey Muratov, Shoghag Khoudigian, IQVIA, Mark Lamotte, Th(is)2Modeling bv (Belgium)

Effectiveness and persistence of brodalumab in patients with plaque psoriasis in the Canadian real-world setting: 3-month follow-up results from the CARE study

The study aims to describe the real-world outcomes of brodalumab for adult patients with moderate to severe PsO in Canada. Patients participating in the CARE study persisted on therapy and experienced rapid and clinically relevant improvements in psoriasis signs and symptoms after three months of brodalumab therapy. Notably, the interim PASI 100 response rate of 43.3% in the CARE study is comparable to that of the AMAGINE-2 and AMAGINE-3 phase III clinical trials, in which 44% and 37% of patients on brodalumab achieved PASI 100 at week 12, respectively.

Gaudet V, Barakat M, Barbeau M, Bausch Health, Canada; Wiseman M, Section of Dermatology, Department of Medicine, University of Manitoba; Kalia S, Department of Dermatology and Skin Science, University of British Columbia; Tuppal R, Oshawa Clinic Dermatology Trials; Prajapati VH, Division of Dermatology, Department of Medicine, University of Calgary; Cecchini M, York Dermatology Clinic & Research Centre; Dr Gagné-Henley A; Brown-Maher T; Neish C, IQVIA Canada.

Healthcare resource utilization following ustekinumab initiation among bio-naïve Canadian patients with moderately-to-severely active Crohn's Disease

Real-world healthcare resource utilization (HCRU) of bio-naïve patients with Crohn's disease (CD) receiving ustekinumab was assessed. A multicentre, retrospective chart review study of bio-naïve Canadian adult patients with moderately-to-severely active CD treated with ustekinumab was conducted. By Month 12, 11.1 % (17/153) of patients had record(s) of any CD-related HCRU event, with ER visits being the most common (7.7 %; 12/155). Hospitalization had the highest average cost (CAD $436.10; SD $2,089.25) across all patients, accounting for 82.2 % of the mean total annual cost/patient (CAD $530.47; SD $2,229.92). While in remission, 5 % of patients experienced some healthcare encounter, compared ≤ with 7 % when not in remission (P 0.289). Finally, 93.5 % of patients persisted on ustekinumab at = Month 12. Conclusions: HCRU rates and associated total annual costs were lower for bio-naïve CD patients receiving ustekinumab, and when patients were in remission. Most patients continued with ustekinumab at Month 12.

Talat Bessissow, Division of Gastroenterology, Department of Medicine, McGill University Health Centre; Neeraj Narula, McMaster University; Christopher Ma, University of Calgary; Tracy S.H. In Janssen Inc., Eneda Pone, QVIA Solutions Canada; Maria Eberg, Western University; Vipul Jairath, Canadian IBD Research Consortium

Migraine preventative medications: Understanding the real-world treatment patterns in patients in Ontario, Canada

This study aimed to characterize treatment patterns for patients on MPMs in Ontario. Persistence and adherence on MPMs continue to be low across drug classes at 6 months and declines further by 12 months. This retrospective study utilized longitudinal claims data from IQVIA's Private Drug Plan in Ontario (PDP-ON) and Ontario Drug Benefit (ODB) databases that capture private and public claims in Ontario, respectively. Over three quarters of patients are not optimally managed (76%) (i.e., did not achieve a >50% reduction in migraine-specific acute medication after initiating an MPM). Further efforts are needed to improve persistence and adherence on MPMs and optimally manage patients.

Christine Lay MD FRCP, Ana Marissa Lagman-Bartolome MD FRCPC, Women's College Hospital, University of Toronto; Ana Rusu, Amnah Awan MP, Goran Davidovic MD, AbbVie Canada; Bijal Shah-Manek BPharm PhD, Noesis Healthcare Technologies

Migraine-specific acute medications: Understanding the real-world treatment patterns for patients in Ontario, Canada

This study aimed to characterize acute treatment patterns for migraine by analyzing real world utilization and costs for patients taking migraine-specific acute medications in Ontario, Canada. The proportion of public drug plan patients aged 35 to 54 that initiated a migraine-specific acute treatment was 25 times lower than private drug plan patients. 24% of private and 43% of public drug plan patients were observed using opioids, despite current guidelines advocating against their use. This real-world data shows an overreliance on opioids that warrants further efforts to educate on appropriate migraine-specific acute treatments.

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2023

Real-world evidence on treatment retention, safety, and tolerability of edaravone in Canadian patients with amyotrophic lateral sclerosis

This real-world evidence (RWE) study hypothesizes that the RWD that are collected from IV edaravone-treated patients with ALS enrolled in the MTP-PS program will demonstrate favorable treatment retention, safety, and tolerability. This ongoing, observational RWE study is collecting de-identified data from edaravone-treated patients enrolled in the MTP-PS program who will be followed for ≤4 years with 4 pre-planned analyses. This RWE study will offer insights into the real-world demographics, characteristics, treatment retention, safety, and tolerability of IV edaravone treated patients in Canada.

Dung Pham, PhD, Louise St-Onge, BSc, Mitsubishi Tanabe Pharma Canada, Inc.; Ryan Ng, PhD, Calum S. Neish, PhD, IQVIA; Belinda Yap, MPH, PhD, Innomar Strategies; Stephen Apple, MD, Mitsubishi Tanabe Pharma America, Inc.

Estimating the associated burden of illness and healthcare utilization of newly diagnosed patients aged 65 with Mantle Cell Lymphoma (MCL) in Ontario, Canada

With the emergence of therapies for mantle cell lymphoma (MCL), understanding the treatment patterns and burden of illness among older patients with MCL in Canada is essential to inform decision making. A retrospective study using administrative data matched individuals aged 65 who were newly diagnosed with MCL between 1 January 2013 and 31 December 2016 with general population controls. Conclusion: Newly diagnosed MCL presents a substantial burden to the healthcare system, with almost half of all patients progressing to a second-line therapy or death within 3 years. Published in Curr. Oncol. 2023, 30, 5529–5545.https://doi.org/10.3390/curroncol30060418

Peter Anglin, Stronach Regional Cancer Centre; Julia Elia-Pacitti, Janssen Canada Inc.; Maria Eberg, Sergey Muratov, Atif Kukaswadia, Arushi Sharma, and Emmanuel M. Ewara, IQVIA

Understanding the real-world treatment patterns for patients with migraine specific acute medications in Ontario, Canada

This study provides evidence of potential underutilization of migraine-specific acute therapies among patients in Ontario. Overall utilization of triptans was low, particularly among PDP-ON patients. High use of opioids was also observed, despite current guidelines advocating against their use; further efforts to educate patients and healthcare providers on evidence-based acute treatment options may be warranted.

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Real-world persistence of ustekinumab in the treatment of inflammatory bowel disease

This study aims to estimate the long-term real-world persistence of UST in adult patients with CD, FCD, and UC. A retrospective study was conducted in patients with CD, FCD, and UC treated with UST through a national patient support program in Canada. This study estimated long-term persistence in a large population of patients with IBD. At 1 year, over three-fourths of patients remained on UST treatment in all disease cohorts, and over half of patients remained on treatment at 4 years in CD and FCD patients. Biologic-naive status was significantly associated with higher persistence in patients with CD. Published in Adv Ther https://doi.org/10.1007/s12325-023-02611-0

Brian Bressler, Department of Medicine, University of British Columbia; Jennifer Jones, Department of Medicine, Dalhousie University; Tracy S. H. In, Janssen Inc.; Tommy Lan, Cristian Iconaru, IQVIA, and John K. Marshall, Department of Medicine and Farncombe Family Digestive Health Research Institute, McMaster University

Understanding the real-world treatment patterns in patients using migraine preventive medications in Ontario, Canada

This retrospective study utilized longitudinal claims data from IQVIA's Private Drug Plan in Ontario (PDP-ON) and Ontario Drug Benefit (ODB) databases that capture private and public claims in Ontario, respectively. Conclusion: Persistence and adherence on MPMs continues to be low across drug classes at 6 months and declines further by 12 months. Over three quarters of patients are not optimally managed (76%) (i.e., did not achieve a >50% reduction in migraine-specific acute medication after initiating an MPM). Further efforts are needed to improve persistence and adherence on MPMs and optimally manage patients.

Christine Lay MD FRCP FAHS, Ana Marissa Lagman-Bartolome MD FRCPC FAHS, Women's College Hospital, University of Toronto; Ana Rusu, Amnah Awan MPH, Goran Davidovic MD, AbbVie Inc.; Bijal Shah-Manek BPharm PhD, Noesis Healthcare Technologies, Inc.

Perianal fistulas are associated with persistently higher direct health care costs in Crohn's Disease: A population-based study

The economic impact of perianal fistulas in Crohn's disease (CD) has not been formally assessed in population-based studies in the biologic era. The aim of this study is to compare direct health care costs in persons with and without perianal fistulas. We performed a longitudinal population-based study using administrative data from Ontario, Canada. Adults (> 17 years) with CD were identified between 2007 and 2013 using validated algorithms. Conclusion In our population-based cohort, perianal fistulas were associated with significantly higher direct healthcare costs at the time of perianal fistulas diagnosis and sustained long-term. Published in Digestive Diseases and Sciences https://doi.org/10.1007/s10620-023-08096-9

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Baseline demographic and clinical characteristics of patients with plaque psoriasis treated with brodalumab in the Canadian real-world setting: Results from the CARE study

The CARE study aims to evaluate the real-world effectiveness, safety, and impact of brodalumab on the quality of life and work productivity of adult patients with PsO in Canada. In this first interim analysis, we describe the baseline demographic and clinical characteristics of patients enrolled in the CARE study. Preliminary assessment of patients with moderate to severe PsO in the CARE study demonstrated that the disease had an impact on quality of life prior to the initiation of treatment. Following brodalumab initiation, additional data will be collected over a 12-month period for patients enrolled in the CARE study. Further analyses of these data will provide a comprehensive evaluation of the impact of brodalumab therapy on quality of life and work productivity.

Kalia S, University of British Columbia; Wiseman MC, SKiNWISE Dermatology; Loo WJ, DermEffects; Brassard D, Clinique D; Adam DN, University of Toronto; Kelly V, Clinique médicale Saint-Louis; Wong R, Rejuvenation Dermatology Clinic; Gaudet V, Barbeau M, Barakat M, Bausch Health, Canada Inc.; Eberg M, Kalson-Ray S, IQVIA

Eye movement biomarkers for classification of multiple sclerosis progression vs non-progression in a cohort of multiple sclerosis patients

The objective is to determine if a mobile device tool that automatically extracts and combines multiple eye-movement metrics can detect, with high accuracy, whether PwMS are experiencing disease progression. The preliminary findings presented suggest that eye movement biomarkers (EMBs) could potentially serve as novel biomarkers in Multiple Sclerosis (MS) to detect early progression before irreversible brain injury occurs, thereby facilitating treatment optimization and improving patient outcomes. In this early analysis, we were able to establish that select eye movement metrics can discriminate between MS patients with progression from those without progression with a relatively high sensitivity and specificity, as early as six months from baseline. When completed, this trial will hopefully demonstrate the reliability of mobile oculomotor assessments for the monitoring of MS progression as a non-invasive, accessible, scalable, and sensitive novel digital biomarker of disease progression - both for cognitive and physical disability.

Paul S. Giacomini, Neurology and Neurosurgery, Montreal Neurological Institute; Natacha Bastien, François Blanchette, Shamiza Hussein, Novartis Pharmaceuticals Canada; Patrice Voss, Francis Arseneau, Rosenberg Ramos, Etienne de Villers-Sidani, Innodem Neurosciences, Sabitha Rajaruban and Tanya Patrawala, IQVIA

The healthcare costs of people living with obesity in Ontario, Canada: A real-world study

Healthcare costs incurred by people living with obesity are on the higher range compared to the general population as a previous study estimated that the top 5% of healthcare cost users in Ontario (aged 18 – 64 years) incur nominal costs of ~CAD$5500 year prior to the index date. While incremental costs associated with prevalent comorbidities such as hypertension are modest, total costs of the study cohort to the healthcare system for hypertension alone may reach ~CAD$2 million dollars given that this comorbidity was prevalent in 42.6% of the cohort. This study showed that individuals living with obesity incur high healthcare costs. Outside of the weight management clinic, people living with obesity received high levels of specialist care. These visits represented a large proportion of the direct costs on the healthcare system.

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Real-world evidence on treatment retention, safety, and tolerability of edaravone in Canadian patients with amyotrophic lateral sclerosis

This real-world evidence (RWE) study hypothesizes that the RWD that are collected from IV edaravone-treated patients with ALS enrolled in the MTP-PS program will demonstrate favorable treatment retention, safety, and tolerability. This ongoing, observational RWE study is collecting de-identified data from edaravone-treated patients enrolled in the MTP-PS program who will be followed for ≤4 years with 4 pre-planned analyses. This RWE study will offer insights into the real-world demographics, characteristics, treatment retention, safety, and tolerability of IV edaravone treated patients in Canada.

Dung Pham, PhD, Louise St-Onge, BSc, Mitsubishi Tanabe Pharma Canada, Inc.; Ryan Ng, PhD, Calum S. Neish, PhD, IQVIA; Belinda Yap, MPH, PhD, Innomar Strategies; Stephen Apple, MD, Mitsubishi Tanabe Pharma America, Inc.

Burden of acute-care hospitalization for community-acquired pneumonia in Canadian adults aged 50 years or older: Focusing on most responsible diagnosis tells only part of the story

The aim of this study was to estimate the burden of hospitalized all-cause CAP in Canada and to assess the contribution of ODx-coded cases to the overall disease burden. This longitudinal retrospective study obtained data from the Canadian Institutes of Health Information (CIHI) for adults 50+ years hospitalized for CAP between 1 April 2009 and 31 March 2019. During this time, 55–58% of cases had pneumonia coded as ODx. Importantly, these cases had longer hospital stays, higher in-hospital mortality, and higher cost of hospitalization. The burden of CAP remains substantial and is significantly greater than that estimated by solely focusing on MRDx-coded cases. Our findings have implications for policy decision making related to current and future immunization programs.

Ana Gabriela Grajales Beltrán, Derek Lytle, Jelena Vojicic, Pfizer Canada; Prerna Grover, Lidija Latifovic, Shane Golden, Juejing Ling, Brad Millson, IQVIA Canada; Alejandro Cane, Vaccines Medical and Scientific Affairs, North America, Pfizer Inc

Lorlatinib effectiveness and quality-of-life in patients with ALK-positive NSCLC who had failed second-generation ALK inhibitors: Canadian real-world experience

Lorlatinib is the only targeted therapy approved in Canada to treat patients with anaplastic lymphoma kinase (ALK)-positive non-small cell lung cancer (NSCLC) whose tumor has progressed despite treatment with second-generation ALK tyrosine kinase inhibitor (TKI), a patient population with high unmet need and lack of publicly reimbursed targeted treatments in Canada. We prospectively examined the real-world effectiveness and impact of lorlatinib on quality-of-life in 59 lorlatinib-treated patients, characterized as: median age of 62.0 years; 47.5% were female; 32.2% had central nervous system metastases; 50.8% had 2+ prior ALK TKI lines; and alectinib was the most common ALK TKI (72.9%) administered before lorlatinib, including 44.1% who received first-line alectinib. At 3 months, patients receiving lorlatinib demonstrated a 0.069 (95% CI: 0.020–0.118; p = 0.007) average HUS increase over baseline; HUS was maintained at 6 and 12 months. Thus, patients with ALK-positive NSCLC post second-generation ALK TKI remained on lorlatinib for a meaningful duration of time while their quality-of-life was preserved.

Martin Rupp, Fiorella Fanton-Aita, Phu Vinh On, Pfizer Canada; Stephanie Snow, Queen Elizabeth II Health Sciences Centre; Paul Wheatley-Price, Department of Medicine, University of Ottawa; Barbara Melosky, BC Cancer–Vancouver; Rosalyn A. Juerg, Juravinski Cancer Centre; Quincy Chu, Cross Cancer Institute; Normand Blais, Centre Hospitalier de l'Université de Montréal; Shantanu Banerj, CancerCare Manitoba Research Institute; Yan Ng, Shoghag Khoudigian, Arushi Sharma, IQVIA Canada; Geoffrey Liu, Princess Margaret Cancer Centre

Estimating the burden of illness of relapsed follicular lymphoma and marginal zone lymphoma in Ontario, Canada

To examine healthcare resource utilization (HCRU) and cost, treatment patterns, progression, and survival of patients with FL and MZL who relapse after first-line treatment, in Ontario, Canada. A retrospective, administrative data study identified patients with relapsed FL and MZL (1 January 2005–31 December 2018). Patients were followed for up to three years post relapse to assess HCRU, healthcare costs, time to next treatment (TTNT), and overall survival (OS), stratified by first- and second-line treatment. A total of 31% of FL and 34% of MZL patients progressed to third-line treatment within three years of initial relapse. Relapsing and remitting nature of FL and MZL in a subset of patients results in substantial burden to patients and the healthcare system.

John Kuruvilla, Department of Medical Oncology and Hematology, Princess Margaret Cancer Centre; Emmanuel M. Ewara, Market Access, Janssen Canada Inc; Julia Elia-Pacitti, Medical Affairs, Janssen Canada Inc., Ryan Ng, Maria Eberg, Atif Kukaswadia, Arushi Sharma, IQVIA Canada

Comparison of tumor-agnostic and tumor-specific clinical oncology trial designs: a systematic review and meta-analysis

To examine whether tumor-specific and tumor-agnostic oncology trials produce comparable estimates of objective response rate (ORR) in BRAF-altered cancers. Materials & methods: Electronic database searches were performed to identify phase I–III clinical trials testing tyrosine kinase inhibitors from 2000 to 2021. The goal of the analysis was to determine if the two types of studies gave similar estimates of response rate, which is a type of trial outcome that measures whether the cancer shrinks or disappears. To do this, the results from the tumor-specific studies were combined with the results of the tumor-agnostic studies. No meaningful differences in the results from the tumor-specific studies compared with the tumor-agnostic studies were found. This suggests that tumor-specific studies do not yield very different results from tumor-agnostic studies.

Mufiza Farid-Kapadia, Madelyn Barton, Zoe Bider-Canfield, Henry J Conter, Hoffmann-La Roche; Parneet K Cheema, William Osler Health System; Bishal Gyawali, Queens University; Natalie M Nightingale, Lidija Latifovic, IQVIA Solutions Canada

2022

Usage and adherence of seven advanced therapies with differing mechanisms of action for inflammatory arthritis in Canada

This retrospective, observational study aimed to analyze and assess adherence, persistence, dosing, and use of concomitant medications of seven self-administered target drugs (abatacept, golimumab, secukinumab, tocilizumab, ustekinumab, apremilast, and tofacitinib) that are currently available in Canada for the treatment of inflammatory arthritis (IA). This study identified substantial differences in patient baseline characteristics. Patients on injectable biologics were more likely to be adherent compared with those on oral drugs, possibly owing to longer dosing intervals. Other outcomes at 12 months appeared similar as evidenced by tapering of concomitant medications, although differences in persistence and dose escalation were noted. Published in Rheumatology and Therapy. 2022 Oct;9(5):1399-420. 10.1007/s40744-022-00485-2

Nantel F, Ling J, Rachich M, Asin-Milan O, Millson B, Golden S, Yang H, Barot P, Lehman AJ.

Persons with diabetes and general/family practitioner perspectives related to therapeutic inertia in type 2 diabetes mellitus using qualitative focus groups and the Theoretical Domains Framework: Results from the MOTION study

Therapeutic inertia in type 2 diabetes (T2DM) is the failure to receive timely treatment intensification as indicated according to T2DM treatment guidelines. Multifactorial causes of therapeutic inertia in T2DM have been documented at the level of persons with diabetes (PwD), health-care providers and health-care systems. For PwD, the most commonly coded TDF domains were intentions, goals, knowledge, beliefs about consequences and social influences. For GPFPs, the most common domains were intentions, environmental context and resources and social/professional role and identity. The BCW identified that PwD interventions should include reflective motivation, psychological capability and social opportunity; GPFP interventions should include physical opportunity, social opportunity and reflective motivation. Comprehensive strategies that target both PwD and GPFP barriers would encourage a more collaborative approach toward treatment intensification decisions and reducing therapeutic inertia. Published in the Canadian Journal of Diabetes. 2022 Mar 1;46(2):171-80. https://doi.org/10.1016/j.jcjd.2021.08.004

Wrzal PK, Mohseni AA, Fournier C, Goldenberg R, Hollahan D, Jin S, Pedersen SD, Vallis M, Bunko A, Myageri V, Kukaswadia A.

A cross-sectional survey to assess reasons for therapeutic inertia in people with type 2 diabetes mellitus and preferred strategies to overcome it from the perspectives of persons with diabetes and general/family practitioners: Results from the MOTION study

Although multiple causes of therapeutic inertia in type 2 diabetes mellitus (T2DM) have been identified, few studies have addressed the behavioural aspects of treatment-intensification decisions among persons with type 2 diabetes (PwT2DM) and general practitioners/family practitioners (GPFPs). A quantitative online survey was developed to capture from 300 PwT2DM and 100 GPFPs. SDM scores showed a significantly lower level of perceived involvement in decision-making related to treatment intensification among PwT2DM compared with GPFPs. Strategies directed at providing GPFPs with tools/approaches to increase PwT2DM involvement in the decision-making process, such as behavioural coaching, decision aids and goal setting, may increase acceptance of treatment intensification, leading to a reduction in therapeutic inertia in T2DM. Published in Canadian Journal of Diabetes. 2022 Jun 1;46(4):337-45. https://doi.org/10.1016/j.jcjd.2021.11.005

Wrzal PK, Mohseni AA, Fournier C, Goldenberg R, Hollahan D, Jin S, Pedersen SD, Vallis M, Bunko A, Myageri V, Kukaswadia A.

Lorlatinib for ALK+ NSCLC patients pretreated with second-generation ALK inhibitors: Canadian real-world experience

To understand the real-world utilization and effectiveness of lorlatinib among Canadian anaplastic lymphoma kinase (ALK)-positive non-small cell lung cancer (NSCLC) patients receiving lorlatinib in the post second-generation ALK tyrosine kinase inhibitor (TKI) setting by examining the time to discontinuation (TTD), and changes in patient Quality of Life (QoL). The results from this cohort of Canadian ALK+ NSCLC patients corroborate the clinically meaningful lorlatinib outcomes in the post 2nd-generation ALK TKI setting shown in clinical trials and other real-world data studies. With median follow-up of 10.8 months, lorlatinib median time-to-discontinuation was 13.3 months (95% confidence interval (95% CI): 7.9-N/A). The findings indicate QoL was maintained among patients receiving lorlatinib.

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Ustekinumab persistence in the treatment of Crohn's disease, fistulizing Crohn's disease and ulcerative colitis

The aim of this study was to estimate the persistence of UST treatment among adult patients with CD, FCD or UC, and to identify factors that have an impact on treatment persistence. Using data from a national patient support program that captures patients treated with UST in Canada, a retrospective study was conducted on adult patients with CD or FCD who initiated UST treatment between January 1, 2017 and July 31, 2021, and adult patients with UC who initiated UST treatment between February 1, 2020 and July 31, 2021. This work investigated the long-term real-world persistence of UST in a large population of patients with IBD in Canada. This study adds to existing research by examining one of the largest cohorts of patients with IBD receiving treatment with UST in Canada, which was only possible by leveraging a national patient support program. It reported that over half of patients with CD were estimated to remain on UST therapy after 4 years of treatment, and biologic-naïve patients with CD were shown to have significantly higher persistence than biologic-experienced patients.

Brian Bressler, Department of Medicine, University of British Columbia; Jennifer Jones, Department of Medicine, Dalhousie University; Tracy S.H. In, Janssen Inc.; Tommy Lan and Cristian Iconaru, IQVIA Solutions Canada Inc.; John K. Marshall, Department of Medicine and Farncombe Family Digestive Health Research Institute, McMaster University.

Real-world observational study of MVASI in metastatic colorectal cancer patients in Canada: Baseline patient characteristics

This study aimed to characterize mCRC patients treated with MVASI in Canada and to describe the real-world safety and effectiveness of this biosimilar product. This retrospective chart review study included adult patients who received at least one cycle of MVASI as their first-line biologic treatment for mCRC. Baseline demographics and cancer characteristics were collected from patient medical charts within the six months preceding MVASI initiation (index date). Medical history, adjuvant treatment, and CRC diagnosis data were gathered within five years preceding the index date. The initial data described were collected approximately one-year post-MVASI availability. Preliminary results suggest that the mCRC patient population included in Wave 1 was generally representative of the Canadian mCRC population treated with first-line bevacizumab. Compared with other published Canadian studies, differences in patient characteristics included a longer period to first-line therapy initiation from mCRC diagnosis (a median of 49 days in the literature vs. 3.1 months in the current study), and a higher proportion of mCRC patients with RAS mutation (29.8%-58% in the literature vs. 60.9% in the current study). The variances in patient characteristics may be addressed by differences in inclusion criteria and definition of time to first-line therapy initiation in previously published data.

W.Y. Cheung, Tom Baker Cancer Centre; S. Samimi, CIUSSS - du Nord-de-l'Ile-de-Montreal; K. Ma, CISSS de Laval; G. Knighy, Grand River Regional Cancer Centre; S. Kassam, Southlake Regional Health Centre; B. Colwello, Nova Scotia Health Authority Queen Elizabeth II Health Sciences Centre; P-F Meyer, M. Eberg, J. Mancini, M. Alemayehu, IQVIA Solutions Canada Inc.; D.J. Martinez, M. Packalen, R.J. Wani, E. Ngan, Y. Du, N. Inam, Amgen Canada Inc.

Burden of acute-care hospitalization for community acquired pneumonia In Canadian adults aged ≥50 years

This study aims to describe the burden of acute-care hospitalization for all-cause CAP in Canada, captured through administrative databases, from April 1, 2009 to March 31, 2019 and to assess contribution of ODx-coded cases to the overall disease burden and outcome measures. Hospitalization data was obtained from CIHI's national administrative databases the Discharge Abstract Database (DAD) and the Canadian Management Information System Database (CMDB). The clinical and economic burden of hospitalized CAP in Canada is substantial. This burden is likely underestimated by studies that focus solely on MRDx- coded cases and exclude ODx pneumonia cases. Particularly because chronic comorbidities such as functional impairment, chronic bronchitis/COPD, asthma, viral respiratory infections (i.e., COVID-19) and chronic heart disease among others are important risk factors for CAP. Importantly, ODx coded CAP cases have higher case fatality, longer stay in hospital, and higher cost of hospital stay. Interventions that prevent CAP may reduce morbidity and mortality in these populations.

Derek Lytle, Market Access, Pfizer Canada Inc.; Ana Gabriela Grajales Beltrán, Jelena Vojicic, Vaccines Medical Team, Pfizer Canada Inc.; Christopher Zuraik, Market Access and Government Relations, Pfizer Canada Inc.; Prerna Grover, Shane Golden, Juejing Ling, Brad Millson, IQVIA Canada; Alejandro Cane, Vaccines Medical and Scientific Affairs, North America, Pfizer Inc.

Real-world effectiveness of ustekinumab in bio-naïve patients with moderately-to-severely active Crohn's Disease in Canada

The Joint Canadian Ustekinumab Real-World Effectiveness and Safety in Bio-naïve Patients with Moderate-to-Severe Crohn's Disease (JUSTify) study provides the first description of real-world ustekinumab effectiveness and safety in bio-naïve moderately-to-severely active CD patients in Canada. JUSTify was a retrospective chart review study that collected data between December 11th, 2020 - September 30th, 2021, from 7 Canadian gastroenterology clinics. JUSTify is the first study to provide real-world evidence of the effectiveness and safety of ustekinumab in bio-naïve Canadian patients with moderately-to-severely active CD. Ustekinumab treatment persistence was high over the study follow-up period. Two-thirds of ustekinumab treated patients achieved short-term clinical or biochemical remission and half achieved long-term endoscopic remission in line with STRIDE-II guidelines. JUSTify confirms ustekinumab as an effective, safe and durable first-line biologic for moderately-to-severely active CD patients.

Talat Bessissow, Division of Gastroenterology, Department of Medicine, McGill University Health Center; Neeraj Narula, McMaster University; Christopher Ma, University of Calgary; Tracy S.H. In, Kinda Karra, Janssen Inc.; Maria Eberg, IQVIA Solutions Canada Inc.; Vipul Jairath, Western University; Canadian IBD Research Consortium.

Identification of barriers to medication adherence in people with type 2 diabetes using qualitative interviews and the Theoretical Domains Framework

To identify barriers to medication adherence faced by PwT2D and explore potential strategies to address these barriers using Theoretical Domains Framework (TDF)-guided, semi-structured one-on-one interviews with PwT2D in Canada. A total of 30 PwT2D patients were recruited and interviewed. Through qualitative interviews, we identified behavioral influences contributing to lower medication adherence among a sample of PwT2D in Canada. Our findings highlight key areas to target for adherence improvement, such as: Improving access to reliable sources of information and resources such as diabetes clinics and support groups where PwT2D can ask questions, receive coaching, and get essential education and training; improving health systems and implementing support programs to cover diabetes-related care products and services; considering lifestyle and convenience when selecting medication regimen; encouraging and enabling use of organization or reminder tools and resources.

Michael Vallis PhD, RPsych, Dalhousie University; Susie Jin RPh CDE CRE, Consultant Pharmacist; Agnieszka Klimek-Abercrombie PhD MBA, Novo Nordisk Canada Inc.; Ginnie Ng PhD, Adrian Bunko MPH, Atif Kukaswadia PhD, Calum S. Neish PhD, IQVIA Solutions Canada Inc.; Noah M. Ivers MD PhD CCFP, Women's College Hospital and University of Toronto.

Cross-sectional study of the impact of the COVID-19 pandemic on diabetes management in primary care in Ontario, Canada

This study aimed to describe the impact of the COVID-19 pandemic on type 2 diabetes (T2D) care in a primary care network with existing virtual care capabilities in Ontario, Canada. Utilizing IQVIA Canada's primary care electronic medical record (EMR) database contains detailed de-identified EMR records from a major primary care network across major cities and rural regions in Southern Ontario. During the COVID-19 period, fewer people with T2D received healthcare visits overall, however, the reduction in healthcare visits was most pronounced in the first 6 months and then returned to near pre-pandemic levels. This was accompanied by a reduction in vital sign measures and lab tests, however, among those who had lab tests performed, there was no difference in results between the pre-COVID-19 and COVID-19 periods. However, since there was a drop in the total number of patients, further research is required on those who did not receive care during the pandemic, and their resulting outcomes.

Alice YY Cheng, Trillium Health Partners & Unity Health Toronto; Stewart Harris, Schulich School of Medicine and Dentistry, Western University; Iris Krawchenko, Hamilton Family Health Team; Richard Tytus, Steel City Medical; Jina Hahn, Aiden Liu, Novo Nordisk Canada Inc.; Yang Wang, Shane Golden, Real World Solutions, IQVIA Solutions Canada Inc.; Ronald Goldenberg, LMC Diabetes & Endocrinology.

Real world demographic and clinical characteristics of Type 2 Diabetes Mellitus patients in Ontario, Canada

The objectives of this study were to investigate the demographic and the clinical characteristics of patients with T2DM in Ontario, Canada with data available from Apr 1, 2002, to Sept 31, 2017, and compare the demographic and clinical characteristics of T2DM patient populations identified by the sensitive and specific cohort definitions to understand their impact on characterizing the disease. When using the specific cohort definition vs. the sensitive definition, the HbA1c distribution shifted to slightly higher HbA1c values, suggesting that our results might underreport the comorbidities experienced by those with T2DM. While the sample sizes differed between the populations identified with each definition, the demographic and clinical characteristics were comparable. The high proportion of patients with comorbidities further illustrate the importance of taking a comprehensive approach to patient management.

Robyn Houlden, Division of Endocrinology, Queen's University, Shane Golden, Scott Shi, Atif Kukaswadia, Arushi Sharma, IQVIA Solutions Canada Inc.; Kobina Quansah, Aiden Liu, Novo Nordisk Canada Inc.

A qualitative study to understand why people living with obesity and general/family practitioners experience therapeutic inertia in obesity

To identify and better understand the factors contributing to healthcare decision-making and therapeutic inertia in obesity management using Theoretical Domains Framework (TDF)-guided, semi-structured phone interviews with general/family practitioners (GP/FPs) and people living with obesity (PwO) in Canada. A total of 20 GP/FPs and 20 PwO were recruited for 45-minute one-on-one interviews. Findings highlight key areas to target to facilitate treatment progression when necessary, such as: More systemic and financial support for obesity management in primary care, including more allotted time for obesity management and access to multi-disciplinary healthcare teams; efficient tools and resources to help GP/FPs keep their knowledge up-to-date and facilitate informative conversations with patients; public campaigns to address stigma against obesity and management, and raise awareness for the risks of the chronic illness.

David Lau MD PhD FRCPC, University of Calgary; Ian Patton PhD, Obesity Canada; Reena Lavji MPharm RPh, Adel Belloum MD, Novo Nordisk Canada Inc.; Ginnie Ng PhD, IQVIA Solutions Canada Inc.; Renuca Modi MD CCFP FCFP, eUniversity of Alberta.

Challenges in evaluating and paying for combination therapies in oncology – a Canadian perspective

This study seeks to describe and highlight the challenges of combination CTs in the context of the Canadian HCS. The findings in this study were obtained via a focused literature review and supported by Canada-specific review of HTA recommendations for oncology CTs and non-CTs in the last two years. IQVIA's Market Access Metrics database was used to identify CADTH recommendations for oncology CTs issued between January 2020 – December 2021. Newly aligned models addressing both near- and long-term implementation issues, and acknowledging opportunity costs for patients and HCS, should be explored to ensure that optimal health benefits from global innovations in oncology can be accessed by Canadian patients in a timely manner.

Raina M. Rogoza, Amgen Canada Inc.; Don Husereau, University of Ottawa; Purva Barot, Brad Millson, IQVIA Canada.

Real-world patient persistence: A comparison of prostaglandin analogs used for the treatment of open-angle glaucoma or ocular hypertension

To compare the persistence of patients receiving latanoprost, latanoprost generic, latanoprostene bunod 0.02% and bimatoprost 0.1%, at 90 days, 180 days, and 365 days within a 12-month analysis period. Data were obtained from the IQVIA Canadian Private Drug Plan (PDP) and Ontario Drug Benefit (ODB) databases, which track reimbursed drug transactions for anonymized patients. This data was obtained for all patients making a claim for a PGA between July 1st, 2019, and June 30th, 2020. Overall, the results demonstrated that persistence to PGAs is strong, specifically at the 90-day and 180-day timepoints. Greater than half of the Patients initiating on bimatoprost 0.1%, latanoprostene bunod 0.02% and latanoprost generic remain persistent after 365 days.

Laforty C, Grover P, Sharma A, IQVIA Canada; Feener S, Barbeau M, Bausch Health, Canada Inc.

Real-world drug retention and initiation of combination drug therapy for patients with pulmonary arterial hypertension in Canada: A retrospective prescription claims database study

This study aimed to understand retention of PAH drugs and time to initiation of combination drug therapies including Macitentan and Selexipag in the Canadian real-world setting. This study included patients with claims for PAH therapies between January 2017 – March 2021, using the Ontario Drug Benefits (ODB), Régie de l'assurance maladie du Québec (RAMQ), and the IQVIA Canadian Private Drug Plan (PDP) databases. This real-world study highlights that the 12-month retention on PAH therapies varies among the different claims databases, with retention at 67% - 88% on Macitentan, 50% - 67% on Selexipag, and 52% - 78% on Tadalafil. Real-world evidence in Canada shows that the majority of PAH patients on Macitentan or Selexipag are on combination therapies. Earlier initiation of combination therapies could potentially support improved disease management and outcomes in PAH patients.

Essam Ibrahim, Assem Al-Akabawi, Moses Dawodu, Janssen Canada Inc; Juejing Ling, Jillian Murray, Brad Millson, IQVIA Solutions Canada Inc.

Concomitant medication use in the treatment journey of pulmonary arterial hypertension patients: A Canadian retrospective claims analysis

This study aims to understand the concomitant medication use and treatment journey of PAH patients in Canada. This study included patients initiating PAH therapy from September 1st, 2016 to August 31st, 2019, using Ontario Drug Benefits (ODB), Régie de l'assurance maladie du Québec (RAMQ), and the IQVIA Canadian Private Drug Plan (PDP) databases. The study demonstrates that Canadian PAH patients experience a complex treatment journey characterized by multiple concomitant medication classes. There is a need to reduce pill burden and improve disease management among the PAH patient population.

Essam Ibrahim , Assem Al-Akabawi , Moses Dawodu, Janssen Canada Inc,; Juejing Ling , Irene Wang, Brad Millson, IQVIA Solutions Canada Inc.

Real-world persistence of erenumab for preventive treatment of chronic and episodic migraine: Retrospective real-world study

To describe the real-world treatment persistence (defined as the continuation of medication for the prescribed treatment duration), demographics and clinical characteristics, and treatment patterns for patients prescribed erenumab for migraine prevention in Canada. This is a real-world retrospective cohort study where a descriptive analysis of secondary patient data was conducted. Enrollment and prescription data were extracted from a patient support program for a cohort of patients prescribed erenumab in Canada between September 2018 and December 2019 and analyzed for persistence, baseline demographics, clinical characteristics, and treatment patterns. The majority of patients prescribed erenumab remained persistent for at least a year after treatment initiation, and most patients initiated or escalated to a 140 mg dose. These results suggest that erenumab is well tolerated, and its uptake as a new class of prophylactic treatment for migraine in real-world clinical practice is not likely to be undermined by poor persistence when coverage for erenumab is easily available.

Jonathan Gladstone, Neurology, Cleveland Clinic Canada; Sameer Chhibber, Department of Clinical Neurosciences, University of Calgary; Jagdeep Minha, Calum S Neish, G Sarah Power, Zhiyi Lan, Real-world Solutions, IQVIA; Driss Rochdi, Jessica Lanthier-Martel, Natacha Bastien, Neuroscience, Novartis Pharmaceuticals Canada Inc. Publication: Headache The Journal of Head and Face Pain PMID: 34807454 DOI: 10.1111/head.14218

Real-world 12-month retention on secukinumab among axial spondyloarthritis patients within the Canadian Spondyloarthritis (CanSpA) Research Network

The objective of this analysis was to use the Canadian Spondyloarthritis (CanSpA) Research Network to describe the Canadian PsA population treated with secukinumab and assess retention at 12 months. This is an observational, registry-based cohort study of Canadian PsA patients 18-65 years old who attend a clinic participating in the CanSpA research network and have received treatment with secukinumab. The CanSpA research network is a centralized database that collects patient-level information on patient and disease characteristics, medical history, treatment and safety, and outcome pooled from multiple Canadian databases: University Health Network (UHN) in Ontario, Rhumadata® in Quebec, and Newfoundland SpA Co-morbidities. This study is the first nationwide study to describe RW retention of secukinumab in 210 Canadian PsA patients. Similar to other registry studies in the U.S. and Europe, the preliminary results of this study showed 12 month retention rates of secukinumab are high particularly for b/tsDMARD-naïve patients and male patients. These findings further support secukinumab as a first-line option for the treatment of PsA.

Dafna Gladman (Krembil Research Institute, Toronto Western Hospital); Denis Choquette (Institut de Rhumatologie de Montréal); Majed Khraishi (Department of Medicine, Memorial University of Newfoundland; Robert Inman (Toronto Western Hospital); Shamiza Hussein (Novartis); Drew Neish (IQVIA); Patrick Leclerc (Novartis Canada)

A real-world, observational study of erenumab for migraine prevention in Canadian patients with prior ineffective prophylactic treatments

The "Migraine prevention with AimoviG: Informative Canadian real-world study" (MAGIC) was a real-world, observational, prospective, open-label study conducted in adult patients with CM and EM who previously experienced inadequate effectiveness or tolerability with two to six categories of prophylactic migraine therapies. Erenumab treatment was safe and generally well tolerated among patients with previous ineffective prophylactic migraine therapy experience. One third of real-world migraine patients previously experienced inadequate effectiveness or tolerability with two to six categories of prophylactic migraine therapies achieved ≥50% MMD reduction after three months of erenumab treatment. Erenumab therapy was associated with patient-reported improvement in migraine clinical status and disability score as assessed by study subjects using P-GIC and MIDAS. Physicians also reported migraine improvement using CGI-I. MAGIC provided real-world evidence of erenumab effectiveness, safety, and usage for migraine prevention in adult Canadian patients with multiple prior ineffective prophylactic treatments.

Werner J. Becker, MD, FRCPC, University of Calgary, Dept of Clinical Neurosciences; Sian Spacey, MD, FRCPC, Division of Neurology, University of British Columbia; Elizabeth Leroux, MD, FRCPC, Brunswick Medical Center; Rose Giammarco, MD, Hamilton Headache Clinic; Christine Lay, MD, Department of Medicine, Women's College Hospital and University of Toronto; Jonathan Gladstone, MD, Gladstone Headache Clinic; Suzanne Christie, MD, Ottawa Headache Centre Inc.; G. Sarah Power, Jagdeep K. Minhas MBiotech, Johanna Mancini PhD, IQVIA Solutions Canada Inc.; Driss Rochdi, PhD, Ayca Filiz, MSc, Natacha Bastien, PhD, Novartis Canada. Published in Headache. 2022;00:1–8. doi:10.1111/head.14291

A real-world, observational study of erenumab for migraine prevention in Canadian patients

Objective was to assess real-world effectiveness, safety, and usage of erenumab in Canadian patients with episodic and chronic migraine with prior ineffective prophylactic treatments. One-third of patients with EM and CM achieved ≥50% MMD reduction after 3 months of erenumab treatment. This study provides real-world evidence of erenumab effectiveness, safety, and usage for migraine prevention in adult Canadian patients with multiple prior ineffective prophylactic treatments.

Becker WJ, Spacey S, Leroux E, et al. A real-world, observational study of erenumab for migraine prevention in Canadian patients. Headache. 2022;00:1–8. doi:10.1111/head.14291

Understanding strategies to improve medication adherence among persons with type 2 diabetes: A scoping review: Scoping review of medication adherence strategies in type 2 diabetes

The objectives of this scoping review were to: (1) identify the target audience and contexts in which strategies to improve type 2 diabetes mellitus (T2DM) medication adherence have been used, (2) provide an overview of behaviour change techniques (BCTs) used, (3) describe the determinants of behaviour targeted by strategies and (4) to identify current gaps in strategies. The findings from this review identify BCTs and targeted behaviours with demonstrated success. Further exploration of the myriad of BCTs and the corresponding determinants of behaviour which were not accessed may be warranted for the development of future strategies to improve medication adherence in type 2 diabetes.

Michael Vallis PhD RPsych, Susie Jin RPh CDE CRE, Agnieszka Klimek-Abercrombie, PhD MBA, Andrean Bunko MPH, Atif Kukaswadia PhD, Calum S. Neish PhD, Noah M. Ivers MD, PhD, CCFP

Therapeutic Inertia in Obesity Management: Perspective of People With Obesity in Canada

This quantitative study was conducted to better understand factors contributing to therapeutic inertia in obesity management from the perspective of PwO in Canada. The ratings of appetite were similar at all the subphases, except the last, late luteal (i.e., premenstrual). In the unadjusted model ,the abdominally obese - PMDD group rated appetite 1.32 (SE=0.27,0.0001) points higher than the lean–no PMDD group; 1.33(SE=0.29, p=0.0003) points higher than the obese - no PMDD group, and 1.07 (SE=0.28, p=0.0022) points higher than the lean -PMDD group. The statistical significance held in the adjusted model.

David C.W. Lau MD PhD FRCPC FTOS, Ian Patton PhD, Reena Lavji MPharm RPh, Adel Belloum MD, Ginnie Ng PhD, Renuca Modi MD, CCFP, FCFP

Therapeutic Inertia in Obesity Management: Perspective of General/Family Practitioners in Canada

This study aimed to better understand factors contributing to therapeutic inertia in obesity management from the perspective of general/family practitioners (GP/FPs) in Canada. Results highlighted GP/FP beliefs and perceptions, and interpersonal and resource considerations that contribute to therapeutic inertia in obesity management. Since themes related to all TDF domains, strategies to overcome challenges of treatment progression should similarly be multi-faceted.

David Lau MD, PhD, FRCPC, Ian Patton PhD, Reena Lavji MPharm, RPh, Adel Belloum MD, Ginnie Ng, PhD, Renuca Modi MD ,CCFP, FCFP

Medication utilization and lines of treatment in patients with insomnia disorder

This research aims to understand real-world prescribing practices among patients with insomnia in Canada, including medication utilization, potentially inappropriate medication use, cost incurred, and lines of treatment. This study unveils the current unmet need for addressing better insomnia care, such as: more education to general practitioners and the public on appropriate medication use and guidelines of care, improving patient access to available alternative safer medications for insomnia, more options for effective and safe interventions, particularly for elderly patients requiring long-term treatment.

Kamboj L, Ramos B, Haynes A, Sohi G, Eisai Limited; Yang H, Ling J, Purva B, Millson B, IQVIA Solutions Canada, Inc.; Amanullah S, Department of Psychiatry, Woodstock General Hospital.

Demographic characteristics of patients initiating topical combination therapies for plaque psoriasis in Canada: a claims-based analysis

This research aims to describe the demographic characteristics of Canadian patients who initiated one of the topical combination products, specifically to understand patients' topical treatment history before initiating a topical combination product. Conclusions:

- A total of 23,084 eligible patients were selected with majority of patients being female, an average age of 47, had their index topical drug prescribed from GPFM and had less than 5 concomitant drug classes.
- 14.6% of total patients were indexed on HP/TAZ and there were higher proportion of HP/TAZ- and BD/ CAL foam-index patients with post-index topical treatment.
- Among patients with a full 3-year claim history prior to index, HP/TAZ-index group had the highest proportion of patients who were experienced to topical therapies prior to index and highest proportion of patients with ≥2 previous molecules for topical therapy prior to index.
- Patients indexed on HP/TAZ are more experienced on topical therapies at time of initiation than other combination products. However, given the recent availability of HP/TAZ, the need remains to understand the drug utilization among a larger cohort of PsO patients with a longer follow-up period.

Gaudet V, Barbeau M, Bausch Health, Canada Inc.; Yang H, Bourgoin T, Sharma A, IQVIA Solutions Canada, Inc.

Healthcare Resource Utilization and Costs Among Patients with Moderately-to-Severely Active Crohn's Disease Treated with Ustekinumab: Real-World Evidence

JUSTify was a retrospective, multicentre, chart review study of bio-naïve adult patients with moderately-to-severely active CD, treated with ustekinumab. JUSTify is the first study to describe real-world HCRU and associated costs in bio-naïve Canadian patients with moderately-to-severely active CD after ustekinumab initiation. Most patients (93.5%) remained on ustekinumab therapy by Month 12. The rate of HCRU events and associated costs were low (7%, $413.2) for bio-naïve CD patients on ustekinumab, and lower (≤3.9%, $102.5) when patients were in remission. Ustekinumab is an effective first-line biologic for the treatment of moderate and severe CD.

Talat Bessissow, Division of Gastroenterology, Department of Medicine, McGill University Health Center; Neeraj Narula, McMaster University; Christopher Ma, University of Calgary; Tracy S.H., Eneda Pone, Janssen Inc.; Maria Eberg, IQVIA Solutions Canada Inc.; Vipul Jairath, Western University; Canadian IBD Research Consortium.

Leveraging patient support program infrastructure to gather data to supplement HTA for rare tumors: What constitutes quality real-world evidence?

The objective is to better understand the perceptions of stakeholders (e.g., CADTH, INESSS, and provincial Ministry/Departments of Health, patients and patient groups) on the application of Canadian real-world evidence (RWE) for reimbursement activities in rare indications with high unmet need. We have demonstrated the feasibility of RWE generation using PSP infrastructure by examining clinically meaningful outcomes in a real-world setting for lorlatinib in the ALK+ NSCLC population, a rare condition, with high unmet need. TTD determined from this cohort of Canadian ALK+ NSCLC patients can be used as a surrogate endpoint for progression free survival (PFS),1 and the TTD results corroborate previously-reported clinically-meaningful outcomes from clinical trials and other RWE studies. Collaboration between manufacturers and stakeholders is needed to balance the availability of timely patient access to therapies for high unmet need patient populations while maintaining healthcare sustainability.

Phu Vinh On, Fiorella Fanton Aita, Martin Rupp, Pfizer Canada; Ryan Ng, Shoghag Khoudigian, Arushi Sharma, IQVIA Solutions Canada.

Retrospective analysis of CADTH oncology recommendations based on surrogate endpoints

This study aimed to investigate recommendations issued by the Canadian Agency for Drugs and Technologies in Health (CADTH) to understand the historical evaluation of traditional and surrogate endpoints with the objective of informing future policy. on OS benefit when evaluating oncology treatments across all tumor types and stages. Importance of surrogate outcomes has been increasing in HTA recommendations as the traditional outcomes being studied within the same clinical trials may not be available at the time of submission. While there may be observed correlation between endpoints and CADTH recommendation outcome in this analysis, it is important to note that CADTH considers several factors and therefore a single endpoint may not have substantial stand-alone impact on CADTH recommendation outcome. Specifically for early-stage tumors, utilizing surrogate endpoints allows clinical trials to proceed with shorter follow-up period and potentially result in earlier access for patients.

Barot P, Bourgoin T, Sharma A, IQVIA Solutions Canada; Hudson L, AstraZeneca, Canada.

Biomarker testing and immunotherapy in patients with locally advanced or metastatic NSCLC: a cross-sectional observational study

This study aimed to understand real-world biomarker testing and immunotherapy prescribing patterns for patients with locally advanced/metastatic NSCLC in first line of therapy (1LOT). Our real-world study indicates high proportions of biomarker testing in advanced NSCLC patients (overall and PD-L/1) highlighting the importance of targeted therapies. The next step is to understand the profile of patients who did not receive biomarker testing to further improve access to targeted treatment. Furthermore, multiple consecutive quarters of data will be combined to determine temporal trends in biomarker testing.

Sergey Muratov, Ryan Ng, Tara Bourgoin, Shoghag Khoudigian, Arushi Sharma, IQVIA Solutions Canada.

Understanding oncology product access in Canada through time-to-listing and reimbursement outcomes

The primary objective was to describe the reimbursement review and funding metrics of oncology products in Canada over time. Secondary objectives were to assess the number of pCODR reviews per year, the time between pCODR submission to final recommendation, the time from notice of compliance (NOC) to first provincial public payer listing and the provincial reimbursement outcomes for oncology products.

Scott Shi, Gabrielle Houle, Juejing Ling, Brad Millson, IQVIA Solutions Canada Inc.

2021

Real-world utilization patterns of long-acting injectable antipsychotics in Canada: A retrospective study

The objective of this study was to analyze the real-world prevalence of long-acting injectable (LAI) antipsychotic use and determine when LAIs are being used in sequencing of antipsychotic medications among Canadian patients with schizophrenia. Despite their potential to reduce relapse in schizophrenia by improving treatment adherence, this study shows LAIs continue to be under-utilized in Canada. When used, LAIs are positioned late in sequencing of antipsychotic medications, often not initiated until years after diagnosis. Continued preference for oral APs with poor adherence may be negatively impacting prognosis and exacerbating burden of schizophrenia. Efforts should be invested to understand barriers to LAI uptake and advocate for earlier, widespread use of LAIs. Published in The Canadian Journal of Psychiatry. 2022 Mar;67(3):226-34. 10.1177/07067437211055413

Agid O, Remington G, Fung C, Nightingale NM, Duclos M, Anger GJ.

Real-world 12-month retention on secukinumab among axial spondyloarthritis patients within the Canadian Spondyloarthritis (CanSpA) Research Network

The objective of this study was to use the Canadian Spondyloarthritis (CanSpA) Research Network to describe the Canadian axSpA population treated with secukinumab and assess its real-world retention. Observational, registry-based cohort study of Canadian ax-SpA patients 18-65 years who attend a clinic participating in CanSpA research network and have been treated with secukinumab. From the preliminary results of this real-world nationwide study of 146 Canadian axSpA patients, secukinumab shows good 12-months' retention rates and represents a valuable therapeutic option for the treatment of axSpA.

Dr. Robert Inman, Dr. Dafna Gladman, University Health Network, Toronto Western Hospital; Dr. Denis Choquette, Institut de rhumatologie de Montréal, CHUM; Dr. Majed Khraishi, Nexus Clinical Research, Memorial University of Newfoundland; Patrick Leclerc, Novartis Pharmaceuticals Canada Inc.; Shamiza Hussein, Drew Neish, IQVIA Canada.

Real-world 12-month retention on secukinumab among psoriatic arthritis patients within the Canadian Spondyloarthritis (CanSpA) Research Network

The objective of this analysis was to use the Canadian Spondyloarthritis (CanSpA) Research Network to describe the Canadian PsA population treated with secukinumab and assess retention at 12 months. This is an observational, registry-based cohort study of Canadian PsA patients 18-65 years old who attend a clinic participating in the CanSpA research network and have received treatment with secukinumab. This study is the first nationwide study to describe RW retention of secukinumab in 210 Canadian PsA patients. Similar to other registry studies in the U.S. and Europe, the preliminary results of this study showed 12 months' retention rate of secukinumab is high particularly for b/tsDMARD-naïve patients. These findings further support secukinumab as a first-line option for the treatment of PsA.

Dr. Dafna Gladman, Dr. Robert Inman, University Health Network, Toronto Western Hospital; Dr. Denis Choquette, Institut de rhumatologie de Montréal, CHUM; Dr. Majed Khraishi, Nexus Clinical Research, Memorial University of Newfoundland; Shamiza Hussein, Patrick Leclerc, Novartis Pharmaceuticals Canada Inc; Drew Neish, IQVIA Canada.

Strategies to overcome therapeutic inertia in type 2 diabetes mellitus: A scoping review

The objectives of this review were to: 1) examine recent strategies and component interventions used to overcome therapeutic inertia in type 2 diabetes mellitus (T2DM), 2) map strategies to the causes of therapeutic inertia they target and 3) identify causes of therapeutic inertia in T2DM that have not been targeted by recent strategies. The findings from this scoping review suggest that a combination of interventions, applied at the patient, healthcare professional and/or health-care system levels may be needed to overcome the myriad of causes underlying therapeutic inertia. However, of the 28 established causes of therapeutic inertia, only 22 were targeted by any strategy since 2014 and most strategies targeted fewer than 5. Although educational interventions are commonly used to address therapeutic inertia, future strategies may benefit from addressing underlying behavioural determinants of therapeutic inertia.

Paulina K. Wrzal PhD a, Medical Affairs, Novo Nordisk Canada, Inc.; Andrean Bunko MPH, Varun Myageri Meng, Atif Kukaswadia PhD, Calum S. Neish PhD, Real World Solutions, IQVIA; Noah M. Ivers MD, PhD, CCFP, Department of Family Medicine, Women's College Hospital and University of Toronto.

Persistence of GLP-1 RA in combination with basal insulin among adults with Type 2 diabetes in Canada

The purpose of this study was to assess the persistence of Canadians with Type 2 diabetes mellitus (T2D) on loose-dose combination treatment (i.e., administered by separate devices) with a glucagon-like peptide 1 receptor agonist (GLP-1 RA) and basal insulin over 12 months. Canadian T2D adults taking a loose-dose combination therapy of a GLP-1 RA and basal insulin had overall low persistence and lower than reports from previous studies of GLP-1 RA or basal insulin alone. Improving persistence to combination therapy with GLP-1 RA plus basal insulin is an important issue to explore in clinical practice.

Alexander Abitbol, LMC Healthcare ; Rick Siemens, London Drugs; Natalie Nightingale, IQVIA Canada; John Stewart, Marie-Josée Toutounji, SANOFI; Ronald Goldenberg, LMC Healthcare. Published in Diabetes Research and Clinical Practice, Volume 177, 108920

Design and methodology of a Canadian, multi-center, single-arm, open label study assessing the efficacy and safety of brolucizumab 6 mg in a treat and extend regimen in patients with neovascular age-related macular degeneration with prior anti-vascular endothelial growth factor exposure (Peregrine)

The purpose of this study is to assess whether switching nAMD patients from aflibercept to brolucizumab would permit extension of treatment intervals while maintaining treatment efficacy, thereby alleviating treatment burden on patients, caregivers, healthcare professionals (HCPs), and medical institutions. Anti-VEGF therapies greatly improve outcomes in nAMD patients, but such therapies impose a high treatment burden on patients and caregivers due to the frequent number of injections required. The T&E regimen provides individualized treatment and permits the gradual extension of treatment intervals (time between injections), leading to a reduction in treatment burden. However, the frequency of injections remains high for approved anti-VEGF therapies (e.g., aflibercept and ranibizumab) administered through a T&E regimen in Canada. Therefore, there remains an unmet need to address the challenge of maintaining efficacy in the treatment of nAMD while minimizing the frequency of clinic visits, thus alleviating treatment burden.

Tom Sheidow, Ivey Eye Institute, and Western University; Peter Kertes, The John and Liz Tory Eye Centre, Sunnybrook Health Sciences Centre, and University of Toronto; G. Sarah Power, IQVIA Solutions Canada; Tina Maio-Twofoot, Shamiza Hussein, Renaud Robert, Novartis Pharmaceuticals Canada.

Real-world persistence of erenumab for preventive treatment of chronic and episodic migraine: A retrospective real-world study

The effectiveness of prophylactic migraine treatments is often undermined by poor treatment persistence. In clinical trials, erenumab has demonstrated efficacy and tolerability as a preventive treatment, but less is known about the longer term treatment persistence with erenumab. The majority of patients prescribed erenumab remained persistent for at least a year after treatment initiation, and most patients initiated or escalated to a 140 mg dose. These results suggest that erenumab is well tolerated, and its uptake as a new class of prophylactic treatment for migraine in real-world clinical practice is not likely to be undermined by poor persistence when coverage for erenumab is easily available.

Jonathan Gladstone MD FRCPC, Neurology, Cleveland Clinic Canada; Sameer Chhibber MD FRCPC, Department of Clinical Neurosciences, University of Calgary; Jagdeep Minhas MBiotech, Calum S. Neish PhD, G. Sarah Power MSc, Zhiyi Lan MSc, Real-world Solutions, IQVIA Canada; Driss Rochdi PhD, Jessica Lanthier-Martel, Natacha Bastien PhD, Neuroscience, Novartis Pharmaceuticals, Canada Inc. Published in Headache. 2021;00:1–11. https://doi. org/10.1111/head.14218

Real-world drug retention and initiation of combination drug therapy for patients with pulmonary arterial hypertension in Canada: A retrospective prescription claims database study

This study aimed to understand retention of PAH drugs and time to initiation of combination drug therapies including Macitentan and Selexipag in the Canadian real-world setting. In 2020, the time to initiation of combination PAH therapies among Canadian patients was also variable, with 4 – 5 months for Macitentan + PDE5i combination therapies, and 17 – 23 months for Selexipag combination therapies. Earlier initiation of combination therapies could potentially support improved disease management in some PAH patients.

Essam Ibrahim, Assem Al-Akabawi, Moses Dawodu, Janssen Canada Inc; Juejing Ling, Jillian Murray, Brad Millson, IQVIA Solutions Canada Inc.

Understanding the COVID Impact on CADTH Submissions, pCPA negotiations and time-to-listing processes in Canada

This study aimed to use a data-driven approach to assess whether CADTH submissions, pCPA negotiations, and time-to-listing of CADTH reviewed files were affected during the post-pandemic era, to understand longer term implications for access to new medicines. In 2020, there was a decrease in the number of CADTH submissions, pCPA reviews, and provincial drug listings compared to the previous 5-year period. In addition, pCPA files waiting for consideration, pCPA negotiation time, and time-to-listing increased. This suggests a relative decrease in process efficiency and potential build-up of backlog. The pandemic challenged existing capabilities of drug review processes to balance urgency of addressing the acute health crisis with importance of maintaining a steady drug review process, potentially creating longer-term challenges. Future efforts should focus on developing strategies to increase resilience to future disruptions as well as better understand the long-term implications of the current slowdown.

Juejing Ling, MSc; Scott Shi, PharmD MBA, Marc Lapierre, Huijuan Yang PhD, Brad Millson, MBS, Real World Solutions, IQVIA Canada.

A retrospective chart review describing the real-world treatment patterns and clinical effectiveness of patients taking Anti-VEGF therapies in Canada

Treatment of these conditions involves intravitreal Anti-Vascular Endothelial Growth Factor (aVEGF) injections as frequently as once a month. To reduce burden, treat-and-extend (T&E) regimens are employed; however, real-world studies show that patients are unable to achieve the visual gains observed in clinical trials and maintain outcomes long-term. This study aimed to expand the real-world evidence available within the Canadian landscape to further understand the treatment patterns and clinical effectiveness of aVEGF therapies. Based on the results of this study, patients receive approximately 9 aVEGF injections in the first year; treatment was effective at improving BCVA and CST. Although Canadian clinicians can begin T&E any time after the initial 3 loading doses, provided evidence of disease stability[2,3], this study found that only a relatively small number of patients were able to extend dosing beyond every two months by the end of the first year. Therefore, the treatment burden remains relatively high for patients, physicians, and the healthcare system.

Dr. Raman Tuli, Retina Centre of Ottawa; Shade Olatunde, Amanda Downey, Kripa Raman, Daniela Belovich, Hoffmann-La Roche Limited; Calum S Neish, Callahan LaForty, Wei Zhe Shi, IQVIA Canada.

Prescribing patterns among in-person vs virtual primary care visits pre-and post-COVID-19 in Ontario, Canada

This study aimed to 1) understand the impact of COVID-19 on prescription patterns for in-person vs virtual visits in a primary care setting in Ontario, Canada and 2)measure the impact within the elderly patient population. The prescription patterns were consistent across the age subgroups. A greater prevalence of anti-depressants post-index was observed for virtual visits among those <65. Our study found a high degree of uptake for virtual visits during the pandemic across the assessed population groups, including the elderly. However, fewer patients received prescriptions in both visit types, although the mean number of prescriptions increased slightly among the virtual care cohort post-index. Future research should examine the impact of virtual vs in-person visits on patient outcomes.

Muratov S, Neish D, Ellis K, Wang I, Yang H, Bhattacharjee P, Barot P, Kukaswadia A, IQVIA Solutions Canada Inc.

Understanding the COVID impact on the healthcare system in Canada

This study aimed to understand how the COVID-19 response impacted non-COVID patient care, measured by healthcare visits, laboratory tests, and new medications, from the beginning of the pandemic to today's "new normal". This study used IQVIA Canada's Electronic Medical Records (EMR) database and Longitudinal Prescriptions (LRx) database to evaluate overall patient care during the COVID-19 pandemic. The focused pandemic response resulted in an overall reduction in access to care across a broad spectrum of patients. Future work should focus on understanding the longer-term health impacts of the 2020/21 lockdown, such as the backlog of untreated and undertreated patients, and identifying lessons to improve and adapt access to care through the next pandemic.

Juejing Ling, MSc, Scott Shi, PharmD MBA, Marc Lapierre, Huijuan Yang PhD, Brad Millson, MBS, Real World Solutions, IQVIA Canada.

Economic burden and loss of quality of life from dry eye disease in Canada

The objective was to describe the direct and indirect cost estimates of dry eye disease (DED), stratified by disease severity, and the impact of DED on quality of life (QoL) in Canadian patients. This study provides important insights into the negative impact of DED in a Canadian setting. Severe DED was associated with higher direct and indirect costs and lower QoL compared with those with mild or moderate disease. Increased costs and poorer QoL were also evident for patients with DED plus Sjögren's syndrome versus DED alone.

Clara Chan, Department of Ophthalmology and Vision Sciences, University of Toronto; Setareh Ziai, University of Ottawa Eye Institute; Varun Myageri, IQVIA Solutions Canada Inc.; James G Burns, Novartis Pharmaceuticals Canada Inc; Lisa Prokopich, Optometry & Vision Science, University of Waterloo. Published: BMJ Open Ophthalmology 2021;6:e000709. doi:10.1136/bmjophth-2021-000709.

Management of uncertainty in HTA recommendations on drugs for rare diseases: a study of CADTH recommendations for drugs for rare diseases

This study sought to understand how CADTH applies considerations for significant unmet need outlined in its procedures in recommendations for DRDs, with the objective of informing future policy. A high proportion of DRDs received a positive recommendation with conditions (89%) despite uncertain evidence, suggesting special considerations may have been applied. However, how these considerations were applied was not explicitly stated and remains unclear. While CADTH reviews effectively identified and described clinical deficiencies within the DRD submissions, there was no clear evidence of clinically-based considerations or allowances based on unmet need or feasibility of evidence generation.

Alexandra Kourkounakis, Maureen Hazel, Bonnie Macfarlane, Janssen Inc; Purva Barot, Shoghag Khoudigian-Sinani, Brad Millson, IQVIA Canada.

Comparing patient compliance and persistence on prostaglandin analogs using real-world utilization databases for the treatment of open-angle glaucoma or ocular hypertension

Medication adherence is crucial for effective glaucoma control and delaying disease progression. Patients with glaucoma who have lower rates of compliance and persistence are presumed to be at greater risk of developing progressive visual loss. The study compared both the persistence and compliance of patients receiving latanoprost, bimatoprost and travoprost, at 90 days, 180 days, and 365 days within a 12-month analysis period. Data were obtained from the IQVIA Canadian Private Drug Plan (Largest national private prescription drug claims database in Canada) and Ontario Drug Benefit (ODB) databases, which track reimbursed drug transactions for anonymized patients. This data was obtained for all patients making a claim for a PGA between July 1st 2016, and June 30, 2018. Results demonstrated that persistence and compliance to PGAs is generally low. Patients initiating on latanoprost have superior persistence and compliance compared to other PGAs in the Canadian population studied. However, there remains a need for innovative therapeutic agents to improve persistence and compliance within the PGA class and prevent vision loss among patients with open-angle glaucoma or ocular hypertension.

Laforty C, Bourgoin T, Sharma A, IQVIA Canada; Barbeau M, Jobin Gervais K, Bausch Health Canada Inc.

An early look at the second dose completion of the recombinant zoster vaccine in Canadian adults: A retrospective database study

This retrospective database study evaluated the second-dose completion of RZV in Canada from January 2018 to May 2019. Data were obtained from the IQVIA LRx Longitudinal Prescription Database which tracks retail prescriptions of anonymized patients. Patients were followed for 6- or 12-months to evaluate the second dose completion aligned with the licensed RZV dosing schedule and NACI's option for greater flexibility. Results: Variation in completion rates was observed across age and geography, but sex, rurality, and pharmacy type did not impact results. Conclusion: Second dose completion of RZV in Canada is high but suboptimal.

Ashleigh McGirr, Michael Wortzman, GSK, Mississauga; Tara Bourgoin, Brad Millson, IQVIA Canada; Shelly A. McNeil, Canadian Center for Vaccinology, IWK Health Centre and Nova Scotia Health Authority, Dalhousie University. Published in Elsevier http://www.elsevier.com/locate/vaccine.

New view on the Canadian burden of stroke: Productivity loss in adults who return to work

This study quantified the productivity loss in 20 stroke survivors who returned to work which amounted to 53.0 missed workdays and an average indirect cost of $10,298 (CAD) in the year following a stroke. Stroke survivors were approached for inclusion in the study during routine follow-up visits with three stroke neurologists; participants were asked to complete a modified version of the Productivity Cost Questionnaire (iPCQ), with a four-week recall period to evaluate (1) absenteeism, (2) presenteeism, and (3) caregiver support using a detailed methodology to estimate the costs of productivity losses. Despite the quantified productivity loss, 75% of patients reported no significant disability and a high proportion were self-employed compared to the Canadian population, indicating that socioeconomic factors may be driving patient decisions to return to work.

Theodore Wein, Johanna Mancini, Raina M. Rogoza, Louisa Pericleous. Published in the Journal of Neurological Sciences, 2021 May;48(3):421-424. doi: 10.1017/cjn.2020.192. Epub 2020 Sep 3.: https://doi.org/10.1017/cjn.2020.192

2020

A retrospective observational population-based study to assess the prevalence and burden of illness of type 2 diabetes with an estimated glomerular filtration rate < 90 mL/min/1.73 m² in Ontario, Canada

To better understand the healthcare burden of people with type 2 diabetes (T2D) and estimated glomerular filtration rate (eGFR) < 90 mL/min/1.73 m² in Ontario, Canada. This real-world retrospective study highlights an increasing prevalence of T2D, eGFR < 90 mL/min/1.73 m², and the substantially higher healthcare costs and HCRU when these patients have adverse cardiovascular and renal outcomes. The existence of such a large economic burden underpins the importance of preventing these diabetes-related complications. Published in https://doi.org/10.1111/dom.14294

Wally Rapattoni BPharm, MSc, David Zante MBA, Marko Tomas PharmD, Janssen Inc.; Varun Myageri Meng, Shane Golden MSc, Prerna Grover PhD, Ali Tehrani BA, Brad Millson MBS, IQVIA Canada; Sheldon W. Tobe MD, Jennifer B. Rose PhD, Sunnybrook Health Sciences Centre.

Burden of treatment resistant depression (TRD) in patients with major depressive disorder in Ontario using Institute for Clinical Evaluative Sciences (ICES) databases: Economic burden and healthcare resource utilization

The burden of treatment-resistant depression (TRD) in Canada requires empirical characterization to better inform clinicians and policy decision-making in mental health. Towards this aim, this study utilized the Institute for Clinical Evaluative Sciences (ICES) databases to quantify the economic burden and resource utilization of Patients with TRD in Ontario. Published in the Journal of Affective Disorders. Patients with TRD exhibit a significantly higher demand on healthcare resources and higher overall payments compared to Non-TRD patients. The findings suggest that there are current challenges in adequately managing this difficult-to-treat patient group and there remains a high unmet need for new therapies. Published 2020 Dec 1;277:30-8. https://doi.org/10.1016/j.jad.2020.07.045

McIntyre RS, Millson B, Power GS.

Weight loss and persistence with liraglutide 3.0 mg by obesity class in the real-world effectiveness study in Canada

Secondary analysis of an observational, retrospective study of liraglutide 3.0 mg for weight management (as adjunct to diet and exercise) at six Wharton Medical Clinics in Canada. Results: Of 308 patients, 70 (22.7%) had obesity class I, 83 (26.9%) obesity class II and 155 (50.3%) obesity class III. Similar percentage change in weight was observed between obesity classes (mean [standard deviation, SD]: –7.0% [6.0], –6.6% [6.0] and –6.1% [5.0], respectively; p = .640), and similar proportions achieved ≥5% weight loss (60.4%, 62.0% and 55.3%, respectively; p = .717) at 6 months. Mean time to maintenance dose (SD) was 64.2 (56.4) d, 76.4 (56.3) d and 71.4 (54.5) d for obesity classes I, II and III, respectively (p = .509). Persistence with medication was also similar between obesity classes (p = .358). Conclusions: These findings suggest that real-world treatment with liraglutide 3.0 mg, regardless of obesity class, is associated with similar clinically significant weight loss, time to maintenance dose and medication persistence.

Sean Wharton, Elham Kamran, Rebecca A. G. Christensen, Wharton Medical Clinic; Christiane L. Haase, Novo Nordisk A/S, Copenhagen; Aiden Liu, Arash Pakseresht, Novo Nordisk Canada Inc.; Johanna Mancini, Drew Neish, G Sarah Power, IQVIA Canada. Published in Obesity Science and Practice. 2020;1–6. doi: 10.1002/osp4.420. Epub 2020 Apr 5.

Real-world observational study on the characteristics and treatment patterns of allergic asthma patients receiving omalizumab in Canada

Omalizumab is a treatment option for pediatric and adult patients with moderate to severe allergic asthma poorly controlled with standard inhaled therapies. Clinical trials and observational studies have demonstrated the efficacy of omalizumab. There is limited real-world evidence on the characteristics and treatment patterns of Canadian asthma patients receiving omalizumab. The study profiled Canadian omalizumab users to estimate time to omalizumab discontinuation and to assess changes in concurrent medication usage before, during, and after therapy. This was a retrospective, observational, cohort study that analyzed data from anonymized Canadian prescription claims databases. The final study cohort consisted of 1160 patients (mean age: 45.8 ± 15.2 years; 64.7% female). This study provided insights about discontinuation trends for omalizumab and other asthma therapies after starting omalizumab, which has both public planning and policy implications and offers clinicians guidance about expectations for adherence and medication changes for patients who start omalizumab.

Jason K Lee, Clinical Immunology and Allergy, Internal Medicine, Evidence Based Medical Educator Inc. and Urticaria Canada; Suvina Amin, AstraZeneca, Gaithersburg, MD; Michelle Erdmann, AstraZeneca, Mississauga, ON; Atif Kukaswadia, Jelena Ivanovic, Aren Fischer, IQVIA Canada; Alain Gendron, AstraZeneca, Mississauga, Ontario, Canada and Department of Medicine, Université de Montréal. Published in the Dove Press journal: Patient Preference and Adherence.

Real-world persistence with liraglutide 3.0 mg for weight management and the SaxendaCare® patient support program

This retrospective observational study of de-identified medical records of 311 patients is the first real-world study examining persistence with liraglutide 3.0 mg in Canada, and also investigates associations between the SaxendaCare® patient support program and persistence and weight loss. Overall persistence was assessed, as well as associations of enrollment in SaxendaCare®, persistence and weight loss. Data were sourced from patients attending the Wharton Medical Clinic (WMC), a network of six Ontario Health Insurance Plan (OHIP) secondary care weight and diabetes management clinics in Ontario, Canada, where patients had been prescribed liraglutide 3.0 mg for weight management. Conclusions: These findings suggest that, in clinical settings, persistence with liraglutide 3.0 mg can exceed 6 months, and that enrolling in SaxendaCare® may be associated with comparatively longer persistence and, regardless of persistence, greater weight loss.

Sean Wharton, Elham Kamran, Rebecca AG Christensen, Wharton Medical Clinic; Christiane L Haase, Arash Pakseresht, Novo Nordisk A/S, Copenhagen; Aiden Liu, Novo Nordisk Canada Inc; Johanna Mancini, Drew Neish, G Sarah Power, IQVIA Canada.

Strategies to overcome therapeutic inertia in type 2 diabetes mellitus: A scoping review

The objectives of this review were to: 1) examine recent strategies and component interventions used to overcome therapeutic inertia in type 2 diabetes mellitus (T2DM), 2) map strategies to the causes of therapeutic inertia they target and 3) identify causes of therapeutic inertia in T2DM that have not been targeted by recent strategies. s. A systematic search of the literature published from January 2014 to December 2019 was conducted to identify strategies targeting therapeutic inertia in T2DM, and key strategy characteristics were extracted and summarized. Therapeutic inertia in the management of type 2 diabetes mellitus is common, with causes at the patient, health-care professional and health-care system levels. The majority of recent strategies to address therapeutic inertia usually consisted of multiple interventions, but rarely targeted more than 1 level. Most strategies used educational interventions among patients or health-care professionals, but gaps were found in addressing determinants of behaviour change.

Paulina K. Wrzal PhD, Medical Affairs, Novo Nordisk Canada, Inc; Andrean Bunko MPH, Varun Myageri Meng, Atif Kukaswadia PhD, Calum S. Neish PhD, Real World Solutions, IQVIA Canada; Noah M. Ivers MD, PhD, CCFP, Department of Family Medicine, Women's College Hospital and University of Toronto. Published the Canadian Journal of Diabetes: https://doi.org/10.1016/j.jcjd.2020.08.109

A retrospective observational cohort study to assess the prevalence of diabetic kidney disease among Type 2 Diabetes patients in Ontario, Canada

Study to describe the prevalence of diabetic kidney disease (DKD) and related CVD comorbidities, including coronary artery disease (CAD), peripheral artery disease (PAD), and cerebrovascular disease/stroke, among T2D patients 30 years of age in Ontario, Canada. To evaluate the BOI by determining healthcare costs of patients with DKD and incident T2D-related outcomes including cardiovascular disease or chronic kidney disease (CVD/CKD) related death, doubling of serum creatinine, dialysis, and kidney transplant in Ontario, Canada. Administrative data was obtained from ICES, previously Institute for Clinical Evaluative Sciences, data repository consisting of de-identified record-level linkable data sets that contain publicly funded administrative health service records for the Ontario population eligible for universal health coverage since 1986. This study thus highlights the large economic burden of DKD and indicates the importance of preventing disease progression by implementing more efficacious therapies and healthy living initiatives.

Wally Rapattoni B.Pharm MSc, David Zante MBA, Jennifer B. Rose, Janssen Inc.; Ali Tehrani BA, Varun Myageri Meng, Shane Golden MSc, Brad Millson MBS, IQVIA Canada; Sheldon W. Tobe MD MScCH (HPTE) FRCPC FACP FASH, PhD, Sunnybrook Research Institute.

Quantifying the burden of the treatment-resistant depression in Ontario: Shredding light on an important mental health issue

To provide much-needed clarity, this study utilized the Institute for Clinical Evaluative Sciences (ICES) databases to quantify the economic burden and health care resource utilization of TRD patients in Ontario. Three cohorts of patients were selected from the ICES databases between April 2006 and March 2015 and followed-up for two years: TRD, treated major depressive disorder (MDD) (non-TRD), and non-MDD controls. Despite numerous therapeutic options, TRD patients represent a considerable economic burden indicating an important unmet need for new therapies.

Brad Millson, G. Sarah Power, IQVIA Canada; Dr. Roger S. McIntyre.

2019

Real-world utilization of methotrexate or prednisone co-therapy with etanercept among Canadian patients with rheumatoid arthritis: A retrospective cohort study

To evaluate whether initiation of etanercept therapy among patients with rheumatoid arthritis (RA) impacts use of co-therapy with methotrexate or prednisone, and to describe etanercept dosing dynamics compared to product monograph in the Canadian real-world setting. A retrospective cohort study was conducted using claims-level data from IQVIA Private Drug Plan database, Ontario Public Drug Plan database and Régie de l'assurance maladie du Québec database. Patients had a modest but not statistically significant decrease in prescribed doses of co-therapy with methotrexate and prednisone when etanercept was added to patients' therapy. In addition, 12-14% of patients stopped their co-therapy with methotrexate or prednisone.

Majed Khraishi, Faculty of Medicine, Memorial University of Newfoundland; Jelena Ivanovic, Yvonne Zhang, Brad Millson, Marie-Josee Brabant, Health Access and Outcomes, IQVIA Canada; John Woolcott, Health Economics and Outcomes Research, Pfizer Inc. ; Heather Jones, Inflammation and Immunology, Global Medical Affairs, Pfizer Inc.; Cinzia Curiale, Inflammation and Immunology, IDM Region Medical Affair, Italy. Publication(s): Journal of Current Medical Research and Opinion, Accepted author version posted online: 25 Jun 2019, Published online: 10 Jul 2019

Real-world comparative analysis of lanreotide autogel and octreotide LAR use for neuroendocrine tumors (NETS) in Canada

To compare injection burden, rescue medication use, annual drug costs and treatment persistence between lanreotide autogel and octreotide LAR over a 12-month period from first SSA prescription. Longitudinal prescription drug claims data from the IQVIA Private Drug Plan, Ontario Drug Benefit program and Régie de l'assurance-maladie du Québec (RAMQ) in Canada were provided by IQVIA for patients receiving their first SSA between September 2015 and June 2018. During the first 30 days of long acting SSA therapy, octreotide LAR 30 mg was associated with a higher rescue medication utilization than lanreotide autogel 120 mg (0.22 vs 0.03 mean number of claims/patient, P<0.0001). Patients receiving octreotide LAR 30 mg received more injections/year than patients using lanreotide autogel 120 mg (13.44 (±0.36) vs 12.54 (±0.24) weighted 12 month mean for injections/patient, P<0.0001). When examining total drug costs for long acting SSA products and rescue medications, lanreotide autogel 120 mg patients had lower annual drug costs than octreotide LAR 30 mg patients ($27,829.35 (±$442.92) vs $31,255.49 (±$905.28) weighted 12 month mean for CAD/patient, P<0.0001).

Jonathan Loree, BC Cancer, Vancouver; Marion Feuilly, Ipsen Pharma SAS, Boulogne-Billanyourt, France; Callahan Laforty, IQVIA Canada; Anna Liovas, Heather McKechnie, Ipsen Biopharmaceuticals Canada; Winson Cheung, Department of Oncology, Cumming School of Medicine, University of Calgary.

Productivity loss in the first year after a cardiovascular event in Canada: A cross sectional study of working adults

The study described total per patient productivity loss incurred in the year following the CVE for those patients who return to work following a CVE (including myocardial infarction, unstable angina or stroke). Cross-sectional study design focusing on CVE patients across Canada through 6 centres in Ontario, Quebec, Alberta, and British Columbia. This is the first study in Canada to estimate the absenteeism and presenteeism in the first year of a CVE, in adults who return to work following a CVE. The results suggest that productivity losses following a CVE are substantial, with both patients and employers incurring losses – approximately 20% of the workdays in a year. Most of the losses were incurred soon after the CVE and do not include the ongoing burden to employers. Further, the estimated productivity loss is likely to be underestimated for the full CVE population, as the study is only comprised of individuals who return to work after a CVE.

A. Shekhar Pandey, B.Sc. MD FRCPC ABIM CBNC, Department of Medicine, McMaster University; Milan Gupta MD FRCPC FACC;1 Theodore Wein, MD FRCPC FAHA, Department of Neurology and Neurosurgery, McGill University; Aren Fischer MSc, Johanna Mancini BSc MSc PhD, IQVIA Canada; Eduard Sidelnikov, MD PhD, AMGEN, Europe GmbH, Rotkreuz, Switzerland; Raina Rogoza, MSc, Louisa Pericleous, MSc, PhD, AMGEN Canada.

Landscape transformation: PCPA changes and impact to market access in Canada – results from an observational cross-sectional study

To understand how market access is evolving in Canada by observing the time required for CDR reviewed drugs/indications to obtain public reimbursement. Specifically, the study seeks to examine the evolving impact of the pCPA and the CADTH pre-NOC review mechanism on public listing of new CDR reviewed drugs/indications. The IQVIA Market Access Metrics database* was used to analyze the time and outcome of CDR reviews, pCPA negotiations, and provincial listing decisions. For CDR reviewed drugs/indications that have undergone pCPA negotiations (excluding active negotiation), time from CDR recommendation to initiation of negotiation accounted for 134 days, and the actual negotiation time accounted for 205 days. The entire process from CDR recommendation to pCPA final decision date took 339 days.

Minhas, Jagdeep MBiotech, Iqbal-Khan, Sarah MBA, Laforty, Callahan, MSc, Ling, Juejing MSc, Shi, Scott PharmD, Millson, Brad, MBS, IQVIA Health Access and Outcomes, Canada.

Real-world clinical effectiveness of liraglutide 3.0 mg for weight management in Canada

Objective: Real-world clinical effectiveness of liraglutide 3.0 mg, in combination with diet and exercise, was investigated 4- and 6-months post initiation. Changes in absolute and percent body weight were examined from baseline. A cohort of liraglutide 3.0 mg initiators in 2015 and 2016 was identified from six Canadian weight management clinics. Post initiation values at 4 and 6 months were compared with baseline values using a paired t test. Results: The full cohort consisted of 311 participants, with 210 in the ≥4-month persistence group and 167 in the ≥6-month persistence group. Average baseline BMI was 40.7 kg/m^2, and weight was 114.8 kg. There was a significant change in body weight 6 and 4 months after initiation of treatment in persistent subjects (≥6-month: –8.0 kg, P<0.001; ≥4-month: –7.0 kg, P<0.001) and in All Subjects, regardless of persistence (–7.3 kg; P<0.001). Percentage change in body weight from baseline was –7.1% in the ≥6-month group and –6.3% in the ≥4-month group, and All Subjects lost 6.5% body weight. Of participants in the ≥6-month group, 64.10% and 34.5% lost ≥5% and >10% body weight, respectively. Conclusions: In a real-world setting, liraglutide 3.0 mg, when combined with diet and exercise, was associated with clinically meaningful weight loss.

Sean Wharton, Aiden Liu, Arash Pakseresht, Emil Nørtoft, Christiane L. Haase, Johanna Mancini, G. Sarah Power, Sarah Vanderlelie, and Rebecca A. G. Christensen. Published: Obesity (Silver Spring). 2019 Jun;27(6):917-924. doi: 10.1002/oby.22462. Epub 2019 May 7.

Trends in psychotropic medication use for Canadian children and youth with ASD from 2010 to 2016: A pharmacoepidemiologic study

The study aimed to describe the frequency and psychotropic prescription trends for behavioural challenges and mental health issues in children and youth with ASD in Canada from 2010 to 2016 and examine if and how the frequency of psychotropic prescription may have changed over time. Data from IQVIA's Canadian Disease and Therapeutic Index (CDTI) was used. The analysis focused on drug recommendations for antidepressants and ADHD medications for children and youth (under the age of 18) with ASD from 2012 to 2016 and antipsychotics from 2010 to 2016. Risperidone was the most commonly recommended medication, followed by aripiprazole. Findings from the present study highlight the need for further efficacy studies of antidepressants and ADHD medications for children and youth with ASD. Additionally, present findings add to the existing literature on psychotropic medication use in children and youth with ASD and will help to inform prescription guidelines.

McMorris, C.A., Werklund School of Education, University of Calgary; Patten, S., Pringsheim, T., Cumming School of Medicine, University of Calgary; Stewart, D., Tehrani, A, IQVIA Canada.

A retrospective observational cohort study to assess the prevalence of diabetic kidney disease among Type 2 Diabetes patients in Ontario, Canada

This real-world study was undertaken to better understand the prevalence of CKD among T2D patients in Ontario using the CREDENCE trial criteria. Ontario is the largest province, accounting for 38.8% of Canada's population in 2019. Patients were identified in the following cohorts: T2D-CKD, T2D-CKD+cardiovascular disease (CVD), T2D-CKD+stroke, and T2D-CKD+CVD or stroke. This population-based retrospective cohort study was conducted in partnership with IQVIA and the Institute for Clinical Evaluative Sciences (ICES). CKD is a common comorbidity amongst T2D patients ≥30 years of age. The study provides estimates of the prevalence of CKD in four cohorts of T2D patients with defined co-morbidities and shows that the use of diagnosis/billing codes alone may underestimate the prevalence of CKD in T2D patients. Furthermore, this real-world analysis highlights a significant, increasing prevalence of CKD among T2D patients ≥30 years of age in Ontario with all methods.

Rapattoni, Wally & Zante, David & Kang, Sha & Tehrani, Ali & Myageri, Varun & Golden, Shane & Millson, Bradley & Rose, Jennifer. Nephrology Dialysis Transplantation. 35. 10.1093/ndt/gfaa142.P0775. June 2020. Nephrology Dialysis Transplantation 35 (Supplement 3) DOI:10.1093/ndt/gfaa142.P0775

McMaster University project on effects of price on demand and consumption of pharmaceutical products across several therapeutic classes

Two graduate students and their advisor, cross appointed between the School of Health Policy and the Department of Economics, were interested in studying the effects of price on demand and consumption of pharmaceutical products across several therapeutic classes. Essentially, they were working to understand the extent to which prices are elastic or inelastic in the healthcare marketplace. To do support this research, IQVIA generated a large custom anonymized data set which provided longitudinal dispensing information (aggregated by age and sex bands) from multiple provinces. The price differences between provincial and private plans allowed the researchers to model the price elasticity by therapeutic area, and to draw conclusions on the impacts of shifting pricing policy on the dispensing and consumption patterns in the Canadian healthcare system.

A retrospective observational cohort study to assess the prevalence and survival of patients with non-alcoholic steatohepatitis (NASH) in Ontario, Canada

Population-based retrospective cohort study of NASH patients in Ontario, Canada. Administrative data was obtained from ICES data repository consisting of de-identified record-level linkable data sets that contain publicly funded administrative health service records for the Ontario population eligible for universal health coverage since 1986. Conclusions: The prevalence of NASH, in Ontario, Canada, grew rapidly between 2008 and 2017. Due to the progressive nature of NASH, a large proportion of patients were in the 65+ age group. Among NASH patients, hypertension and diabetes were the most common comorbidities. There was a decrease in dyslipidemia among severe NASH patients, consistent with previous reports. Patients with advanced disease were more likely to reside in rural areas and within postal codes that correspond to lower income quintiles. Due to the progressive nature of NASH, patients with more advanced stages of NASH had a lower probability of survival. This real-world analysis thus addresses gaps in NASH epidemiology and highlights the increasing prevalence of NASH in a large Canadian province.

Dr. Keyur Patel, University Health Network, Toronto; Dr. Paul Marotta, Western University; Dhanwantee Mundil, Dylana Mumm, Sevil Marandi, Gilead Sciences Canada Inc; G. Sarah Power, Drew Neish, Wei Zhe Shi, Brad Millson, IQVIA Canada.

Prescriptions for alpha agonists and antipsychotics in children and youth with Tic Disorders: A pharmacoepidemiologic study

Trends in the use of antipsychotics and alpha agonists for the treatment of tic disorders in Canadian children, and how closely these trends align with evidence-based guidelines on the pharmacotherapy of tic disorders, have not been explored. IQVIA's Canadian Disease and Therapeutic Index, a survey-based data set, was used to identify prescription patterns by physicians. Risperidone and clonidine were the most commonly recommended medications for tic disorders over the study period, with 36,868 and 35,500 recommendations in 2016, respectively. The trends observed are in line with guideline recommendations reflected in the decreasing use of risperidone, and the growing use of clonidine and guanfacine. The growing use of aripiprazole is likely due to emerging evidence from clinical trials supporting its efficacy for tics. Recommendations for pimozide and haloperidol were limited, likely due to the greater adverse effects associated with these medications.

Nicholas Cothros, Davide Martino, Department of Clinical Neurosciences, Cumming School of Medicine, University of Calgary and Hotchkiss Brain Institute, Foothills Hospital; Carly McMorris, Werklund School of Education, Alberta Children's Hospital Research Institute (ACHRI); David Stewart, Ali Tehran, IQVIA Canada; Tamara Pringsheim, Department of Psychiatry, Cumming School of Medicine, University of Calgary, Foothills Hospital, Calgary, Department of Pediatrics, Cumming School of Medicine, University of Calgary. Publications: Tremor Other Hyperkinet Mov (N Y)v.9; 2019

Burden of Illness of patients with non-alcoholic steatohepatitis (NASH) in Ontario, Canada

The study evaluated the burden of illness, by determining the healthcare resource utilization (HCRU) and healthcare costs incurred by NASH patients in Ontario, Canada. Administrative data was obtained from ICES, data repository consisting of de-identified record-level linkable data sets that contain publicly funded administrative health service records for the Ontario population eligible for universal health coverage since 1986. HCRU and costs were calculated over a one-year analysis period following index, except for patients in the deceased NASH cohort where HCRU and costs were analyzed in the 6 months preceding their death record. All public healthcare costs, such as physician visits, hospital costs, public drug plans, dialysis clinics, long term care, etc. were measured. As NASH severity increased, patients saw their specialist physicians more often, had more hospital visits, and longer average lengths of stay in the hospital. NASH patients had high annualized per patient healthcare costs and these costs increased with disease progression. From 2008 to 2018, the total public healthcare costs for NASH patients in the one-year analysis period were substantial, between $6.7 million to $920.5 million depending on the cohort.

Dr. Keyur Patel, University Health Network, Toronto; Dr. Paul Marotta, Western University; Dhanwantee Mundil, Dylana Mumm, Sevil Marandi, Gilead Sciences Canada Inc.; G. Sarah Power, Drew Neish, Wei Zhe Shi, Brad Millson, IQVIA Canada.

Induction cost per responder of brodalumab compared with other biologics for patients with moderate to severe psoriasis in Canada

The study intended to estimate the cost per responder (CPR) of brodalumab at the end of the induction period of therapy compared to other biologics available in Canada including adalimumab, etanercept, guselkumab, infliximab (innovator and subsequent entry biologics), ixekizumab, secukinumab and ustekinumab. Drug acquisition costs in Canadian dollars (numerator) were obtained through the Ontario Drug Benefit and IQVIA's DeltaPA database. Doses required were incorporated according to respective Health Canada Product Monographs. These results demonstrate that brodalumab has the lowest cost per responder across all three PASI outcomes compared to other biologic therapies, including subsequent entry biologics. Findings are consistent with published literature demonstrating brodalumab's cost effectiveness for the treatment of moderate-to-severe plaque psoriasis.

Gaudet V, Barbeau M, Golden S, Bausch Health, Canada Inc.; Muratov S, Khoudigian S, IQVIA Canada.

Anti-VEGF persistence and switching in nAMD: real world analysis from a Canadian claims database

The primary objective of the study was to illustrate the frequency of dosing for patients who switch anti-VEGF agents (experienced patients) in the first year (post-switch) of treatment. This study was an observational, retrospective, longitudinal claims database study of licensed anti-VEGF treatments in Ontario for patients covered under the Ontario Drug Benefit (ODB) public program and is based on a study conducted by IQVIA. The average number of claims in months 0–12 was comparable among treatment naive patients and experienced patients, indicating patients who switch are re-loaded. Treatment naive patients who maintained treatment had 22% fewer claims from 13–24 months than 0–12 months.

Tina Maio-Twofoot, Francois Lebeau, Valerie Gregory, Novartis Pharmaceuticals Canada Inc; Alexandros Sagkriotis, Novartis Pharma AG; Atif Kukaswadia, IQVIA Canada.

Prevalence of uncontrolled LDL-C within an Ontario ASCVD population receiving lipid lowering therapies

This study investigated the prevalence of patients with uncontrolled LDL-C despite using LLTs within an Ontario ASCVD population. This study identified 796 ASCVD patients meeting the selection criteria from a general practitioner/family medicine based EMR database in Ontario. Within this population, 508 patients took LLTs and 82 of them had uncontrolled LDL-C levels while on LLTs. Out of the 796 ASCVD patients, 10.3% of patients were uncontrolled despite on LLTs. This subset of the ASCVD population could benefit from additional therapeutic options, such as PCSK9 inhibitors, to meet LDL-C targets.

Karine Alloul, Anna Apostolakis, Sanofi Canada Inc.; Aren Fischer, Rhonda Boudreau, Juejing Ling, Brad Millson, IQVIA Solutions Canada.

The pharmacoepidemiology of anti-depressant prescribing trends in Canadian children from 2012 to 2016

The goal of this study was to characterize the frequency and trends of psychotropic drug prescribing in Canadian children from 2010 to 2016 and to compare these results with a previous study conducted between 2005 and 2009. Using a national physician panel survey database from IQVIA Canada, aggregated frequencies of written prescriptions and therapeutic indications for antipsychotics, attention-deficit/hyperactivity disorder (ADHD) medications (psychostimulants and nonstimulants), and antidepressants were analyzed in children. Several factors may be involved in stabilization and small decrease in antipsychotic use in recent years, including physician and patient awareness of adverse effects related to antipsychotic use, knowledge implementation strategies advocating short-term and judicious use of antipsychotics in children, and the approval of guanfacine extended release for use in Canada for ADHD in 2013.

Aysha Lukmanji BA, Sc, Department of Community Health Sciences, Cumming School of Medicine, University of Calgary; Tamara Pringsheim MD, Andrew G. Bulloch PhD, Department of Clinical Neurosciences, Mathison Center for Research & Education, Hotchkiss Brain Institute, University of Calgary; David G Stewart, Parco Chan, Ali Tehrani, IQVIA Canada; Scott B. Patten, Cuthbertson & Fischer Chair in Pediatric Mental Health, University of Calgary. Publication(s): J Child Adolesc Psychopharmacol. 2019 Jul 29. doi: 10.1089/cap.2019.0018

2018

Pharmacoepidemiology of psychotropic medication use in Canadian children from 2012 to 2016

To evaluate prescribing trends of psychotropics comprising antipsychotics, antidepressants, and psychostimulants from 2010-2016, and compare these trends to our original analysis from 2005-2009. Although projected recommendation frequencies of ADHD drugs and antidepressants increased steadily from 2012 to 2016, those of antipsychotics remained relatively constant, a significant reversal compared to growth of antipsychotic recommendations during 2005 – 2009. May be attributed to: Increased physician and patient awareness of adverse effects related to antipsychotic use, and knowledge implementation strategies advocating short-term and judicious use of antipsychotics in children.

Tamara Pringsheim MD, Clinical Neurosciences, Psychiatry, Pediatrics and Community Health Sciences, University of Calgary; David G. Stewart MA, Parco Chan MSc, Ali Tehrani BA, IQVIA Canada.

pCPA changes and impact to market access in Canada: Results from an observational cross-sectional study

To understand how market access is evolving in Canada by observing the time required for newly approved drugs/indications to obtain public reimbursement as the relative success rates of public reimbursement. Specifically, the study seeks to examine the evolving impact of the pCPA and the CADTH pre-NOC review mechanism on public listing of new drugs. The IQVIA Market Access Metrics database was used to track and analyze the time and outcome of CDR reviews, pCPA negotiations, and provincial listing decisions. Overall, between 2010 and 2017, the average time to first public listing for new drugs was 1 year and 4 months (n=154). The proportion of CDR reviews with pCPA decisions increased to 100%, indicating that all drugs listed by provinces in 2015 onwards required pCPA negotiation decisions first. Drugs that used the pre-NOC CDR review had a 274-day (75 + 199) head start compared to post-NOC drugs; the pre-NOC process saved an average of 164 days from time to first public listing when compared to the TTL for post-NOC drugs. As the pCPA has ramped up to apply to all new drugs, the time through negotiation seems to have increased.

Minhas, Jagdeep M.Biotech, Iqbal-Khan, Sarah MBA, Laforty, Callahan MSc 2, Millson, Brad MBS, IQVIA Canada.

Assessing the benefits of co-pay card usage among diabetic patients in Canada

To investigate the impact of Co-pay cards on medication retention in Canadian diabetes patients treated with Dapagliflozin (Brand 1) or Dapagliflozin/Metformin (Brand 2) drugs. To evaluate the impact of marginal increases in out-of-pocket cost on medication retention among Canadian diabetes patients treated with Brand 1 or Brand 2 drugs. Retention results indicated that Brand 1 Co-pay card patients were retained for 51 days longer compared to cash (non Co-pay card patients). Similarly, Brand 2 Co-pay card patients were retained for 27 days longer compared to cash (non Co-pay card patients).

Jing Guo, Christian Silva, Chris Stewart, Andrew Leung, Department of Mechanical and Industrial Engineering, University of Toronto; Behlool Khan, Johanna Mancini; IQVIA Canada.

Severe, eosinophilic asthma in primary care in Canada: A longitudinal study of the clinical burden and economic impact based on linked electronic medical record data

Stratification of patients with severe asthma by blood eosinophil counts predicts responders to anti-interleukin (IL)-5 (mepolizumab and reslizumab) and anti-IL-5 receptor α (benralizumab) therapies. This study characterized patients with severe asthma who could qualify for these biologics in a primary care setting. The data suggest that during 2010-2014, Ontario primary care patients with severe asthma and high blood eosinophil counts had greater HRCU than those with lower counts. Approximately 41% of patients with severe asthma could qualify for anti-eosinophil drugs based on blood eosinophil counts. However, the eosinophilic status of most patients was unknown. It is appropriate to increase awareness of the use of blood eosinophil counts to identify patients who could be considered for anti-eosinophil therapies.

Don Husereau, Department of Epidemiology and Community Medicine, School of Epidemiology and Public Health, University of Ottawa; Jason Goodfield, Richard Borrelli, Michel Cloutier, IQVIA Canada; Richard Leigh, Department of Medicine, Cumming School of Medicine, University of Calgary; Alain Gendron, AstraZeneca Canada Inc.; Department of Medicine, University of Montreal. Published: Allergy Asthma Clin Immunol .2018 Apr 24;14:15. doi: 10.1186/s13223-018-0241-1. eCollection 2018.

Antibiotic stewardship in the community

In 2018, Ontario's Public Health agency turned its attention to Antibiotic Stewardship in the community setting, having spent years working with Ontario hospitals. The Agency only has access to publicly-reimbursed pharmaceutical data, and experienced significant data lag in the public data set. IQVIA worked to produce a data set, according to the Agency's requirements and drawing from IQVIA's anonymized prescription infromation database, to deliver a one-year portrait of community physician antibiotic prescribing patterns. This data was disaggregated according to Health region, Age & sex of patients, and Days of therapy. The Agency was able to produce a first landscape analysis of antibiotic utilization patterns in the community setting. This landscape revealed regions and groups of physicians who prescribed differently from what was recommended in the guidelines. The Public Health Agency was also able to leverage this research to design a subsequent intervention study to attempt to change treatment patterns.

Persistence with insulin Glargine 300 lU/mL compared to other basal insulins: A Canadian retrospective cohort study

Objectives of the study: To examine persistence by basal insulin product and diabetes type over a 12-month period and to describe switching dynamics among patients who discontinued a basal insulin product during the study analysis period. At 12-months, both Type 1 and Type 2 diabetes patients taking Gla-300 had higher persistence. The higher persistence on Gla-300 was still observed after controlling for measurable sources of bias using CPHM. This was a large national study of real-world basal insulin usage patterns among patients in Canada. Additional research to understand how improved persistence translates into disease control (i.e., HbA1c), as well as longer term health outcomes will be of value to patients.

Kobina Quansah, Atif Kukaswadia, Samantha Bremner, Brad Millson, IQVIA Canada; Luc Sauriol, Sanofi.

Impact of adalimumab patient support program's Care Coach Calls on clinical outcomes in patients with Crohn's Disease in Canada: An observational retrospective cohort study

The objective of this study was to compare the likelihood of achieving clinical remission in a cohort of CD patients treated with adalimumab who did and did not receive CCCs. A longitudinal analysis was performed using de-identified aggregate-level data collected through the AC-PSP. The objective of this study was to compare the likelihood of achieving clinical remission in a cohort of CD patients treated with adalimumab who did and did not receive CCCs.

Neeraj Narula MD MPH FRCPC, John K. Marshall MD MS FRCPC, Department of Medicine, Division of Gastroenterology, Farncombe Family Digestive Health Research Institute, McMaster University; Brad Millson MBS, Katia Charland PhD, Krishna Donepudi MBA, IQVIA, Health Access and Outcomes Division; Tania Gaetano MIS, Kevin McHugh PhD, Martin G. Latour PhD, Sandra Gazel MS MBA, Marie-Claude Laliberté PhD, AbbVie Corporation. Published in Journal of the Canadian Association of Gastroenterology, 2018, 1(4), 191–198 doi: 10.1093/jcag/gwy059

Real-world clinical effectiveness of liraglutide 3.0 mg for weight management in Canada

The first study to investigate the real-world clinical effectiveness of liraglutide 3.0mg, in combination with diet and exercise, at four- and six-months post-initiation; to examine changes in absolute and percent body weight, as well as in cardiometabolic markers, from baseline. database of de-identified electronic medical records (EMR) from the Wharton Medical Clinic (WMC), a network of six publicly funded secondary care weight and diabetes management clinics in Ontario, Canada, was used. In a real-world setting, liraglutide 3.0mg, when combined with diet and exercise, was associated with clinically meaningful weight loss and with improvements in cardiometabolic markers.

Sean Wharton. Wharton Medical Clinic; Aiden R Liu, Novo Nordisk Canada; Arash Pakseresht, Novo Nordisk Canada, Emil Nørtoft, Novo Nordisk A/S, Copenhagen; Christiane L Haase, Novo Nordisk A/S, Copenhagen; Johanna Mancini, G Sarah Power, IQVIA Canada; Sarah VanderLelie, Wharton Medical Clinic; Rebecca AG Christensen, Wharton Medical Clinic.

Potential impact of changes to basket of comparator countries from PMPRB7 to PMPRB12 has on Canadian product list prices

To estimate the potential impact on maximum prices for patented medicines in Canada after PMPRB comparator countries from PMPRB7 to PMPRB12, are implemented. The sample consisted of 16% of patented drug products reported to the PMPRB in 2016. For each product, the most common Canadian list price across provinces (in most cases the highest Canadian list price), not the average transaction price, was compared to international prices in the PMPRB73-9 and PMPRB12. For most drugs, the Canadian list price is higher than all the prices in the PMPRB12 basket. This suggests that even if the only change implemented is the new basket with no other guideline changes, a significant proportion of drugs will require a list price reduction.

Van Doorn-Drennan J., Minhas J., Millson B., McCormick J., IQVIA Canada.

Longitudinal study of patient profile and treatment patterns of omalizumab in patients with asthma refractory to inhaled medications

This study aimed to describe the demographics and clinical characteristics profile of Canadian patients treated with omalizumab; to measure omalizumab persistence; and to assess concurrent medication use. IQVIA analyzed real–world prescription claims data sourced from the IQVIA Private Drug Plan (PDP), Ontario Drug Benefit Plan (ODBP), and Régie de l'Assurance Maladie du Québec (RAMQ) databases. Each claim is recorded using a unique patient number and transaction date to allow for longitudinal data analysis. This study indicated that nearly half of the Canadian patients' refractory to inhaled therapies in this study discontinued omalizumab within the first 24 months Patients aged 20–34 had a significantly greater likelihood of discontinuing omalizumab than did patients aged 12–19 years.

Jason K. Lee, Evidence Based Medical Educator Inc. and Section Head of Asthma at Canadian Society of Allergy and Clinical Immunology; Suvina Amin, Michelle Erdmann, AstraZeneca; Atif Kukaswadia, Jelena Ivanovic, Aren Fischer, IQVIA Canada; Alain Gendron, AstraZeneca and Department of Medicine, University of Montreal.

Productivity losses after acute coronary syndrome events in Canada: An interim analysis

The study set out to describe total productivity loss a patient incurs in the first year after an ACS event, for patients who go back to work. Cross-sectional study of ACS patients across Canada, through a total of 3 cardiology centres in Ontario and Quebec. The interim results suggest that productivity losses following an ACS event are substantial, with both patients and caregivers incurring losses. Absenteeism is the primary driver of productivity loss following an ACS event.

Shekhar Pandey B.Sc. MD FRCPC ABIM CBNC, Milan Gupta, MD, FRCPC, FACC, Department of Medicine, McMaster University; Aren Fischer MSc, Johanna Mancini BSc MSc PhD, IQVIA Canada; Eduard Sidelnikov, MD PhD, Louisa Pericleous MSc PhD, AMGEN.

Cost-effectiveness analysis of brodalumab in moderate-to-severe plaque psoriasis in Canada

To assess the cost-effectiveness of brodalumab versus available biologics and best supportive care (BSC) in adult patients with moderate-to-severe plaque psoriasis in Canada. A decision tree and Markov state-transition model was developed over a 10-year time horizon from a public payer perspective. Brodalumab is the most cost-effective option compared with publicly funded biologics for the treatment of moderate-to-severe plaque psoriasis in Canada. As such, the reimbursement of brodalumab will benefit the Canadian public by introducing a highly effective and most likely costs-savings alternative to the public payer system.

Xue, W., Gray, E., IQVIA London UK; Khoudigian-Sinani, IQVIA Canada; S., Barbeau, M, Frieder D, Valeant Canada LP.

Reduction in the utilization of prednisone or methotrexate in Canadian claims data following initiation of etanercept in pediatric patients with juvenile idiopathic arthritis

To evaluate co-treatment utilization and ETN costs in Canadian pediatric patients initiating ETN therapy. A retrospective study was conducted using longitudinal prescription drug claims data from the IQVIA Private Drug Plan, Ontario Public Drug Plan, and Quebec Public Drug Plan databases. This evaluation of Canadian claims data demonstrated that nearly a third of pediatric patients initiating ETN were co-treated with MTX or PRD. Many patients discontinued their co-therapies, and weekly dosages of MTX or PRD were significantly lower within the first year of initiating ETN treatment for those who continued therapy with these agents.

Majed MKhraishi, Memorial University of Newfoundland; Brad Millson, IQVIA Canada, John Woolcott, Global Outcomes & Evidence, Pfizer, Collegeville, PA; Lisa Marshall, Heather Jones, Pfizer, Collegeville, PA.

Canada's study of adherence outcomes in patients receiving adalimumab: 3-year results from the COMPANION study

The aim of this study was to quantify the association between receiving care-coach calls (CCCs), a service provided by a patient-support program (PSP) in Canada, and persistence with and adherence to adalimumab therapy over a 3-year period in patients with immune-related inflammatory diseases (IMID). COMPANION, a longitudinal, retrospective cohort study, was conducted using patient-level data from the PSP combined with those from a longitudinal pharmacy-transaction database in patients initiating adalimumab therapy between 2010 and 2012. During the follow-up period, patients who received CCCs had a significantly reduced risk for treatment discontinuation (hazard ratio = 0.350; 95% CI, 0.298-0.413; P < 0.0001) and a greater likelihood of being adherent (odds ratio, 2.248; 95% CI, 1.927-2.624; P < 0.0001).

John K Marshall, Department of Medicine, Division of Gastroenterology, Farncombe Family Digestive Health Research Institute, McMaster University; Louis Bessette, Department of Medicine, Laval University; Neil H Shear, Faculty of Medicine, University of Toronto; Department of Medicine, Division of Dermatology, Sunnybrook Health Sciences Centre; Gerald Lebovic, Applied Health Research Centre, St. Michael's Hospital; Institute of Health Policy, Management and Evaluation, University of Toronto; Jennifer Glass, Brad Millson, QuintilesIMS, Health Access and Outcomes; Tania Gaetano, Sandra Gazel, Martin G Latour, Marie-Claude Laliberté, J Carter Thorne, AbbVie Corporation. Publication: Clin Ther, 2018, Jun; 40(6): 1024-1032. doi: 10.1016/j.clinthera.2018.04.017. Epub 2018 May 24.

2017

The Impact of onabotulinumtoxinA on opioid and triptan use in chronic migraine: A longitudinal claims-based analysis

The objectives of this study were to investigate whether inferred CM patients change opioid and triptan utilization after one year of onabotulinumtoxinA treatment (13-24 months post initiation). Longitudinal patient-level records were obtained from QuintilesIMS' Private Drug Plans Database (PDP) for this study. This is the largest, national private drug plan claims database in Canada, covering approximately 70% of the total private drug claims in Canada and capturing more than 12 million active claimants. Many patients with migraine require triptan medication, and a subset of CM patients use prescription opioids to manage acute headache pain. The findings of this study suggest that inferred chronic migraine patients with a history of triptan, oral migraine prophylactic medications, and opioid utilization who received 3-4 treatment cycles of onabotulinumtoxinA in their first 12 months on therapy demonstrated a reduction in the number of opioid and triptan claims between months 13-24 post onabotulinumtoxinA initiation.

B Khan, QuintilesIMS; G Shapero, The Shapero Markham Headache & Pain Treatment Centre; ; I Finkelstein, The Toronto Head & Pain Clinic; J Taylor, Allergan Inc.

Longitudinal analysis of real-world basal insulin utilization for type 1 and type 2 diabetes patients transferring to insulin glargine U-300 (Gla-300)

To examine how the ADD of insulin changed when patients transferred from a long or intermediate acting basal insulin, including i) Gla-100; ii) insulin detemir; or iii) neutral protamine Hagedorn (NPH) insulin, to Gla-300. To examine basal insulin treatment persistence by insulin in private payer patients. A retrospective cohort study was conducted using longitudinal prescription data from QuintilesIMS Private Drug Plan (PDP) claims database®, from April 2013 - March 2016 with a 12-month lookback. In Canadian real-world practice, the overall basal insulin ADD was reduced once patients were transferred (and titrated) to Gla-300. Further research and longer-term data is needed to better understand the impact on patient persistence, overall patient outcomes, and safety.

Zhang, Yvonne MA, Glass, Jennifer PhD, Millson, Brad MBS, QuintilesIMS; Sauriol, Luc MSc, Sanofi.

The current state of liver transplantation in Canada

Understand the liver transplant landscape in Canada and segment the top ten most predominant diagnoses for the following metrics: a. Liver transplant demographic and clinical characteristics, b. 6-year national prevalence, and provide a targeted assessment of HCV, PBC, SC, AL-LC, HCC and NASH for the following metrics: a. Liver transplant annual trend, b. Liver transplant regional distribution, c. Wait-time and survival analysis. study used patient-level records for liver transplants for the study period of March 2010 to April 2015. The data source is managed by the Canadian Institute for Health Information and is held in the Canadian Organ Replacement Register. Quebec and British Columbia data were not available for this study. Findings showed in 2015 there was an increase in the number of HCC liver transplants, a result of the use of MELD exemption points for patients with HCC, which prioritizes HCC patients on the wait-list.

EM. Yoshida, University of British Columbia; A. Mason, University of Alberta; K. Peltekian, Dalhousie University; L. Lilly, University of Toronto; P. Marotta, University of Western Ontario; P. Wong, McGill University; M. Hux, A. Fischer, SL. Thiele, R. Borrelli, QuintilesIMS.

Impact of the adalimumab patient support program on clinical outcomes in ankylosing spondylitis (AS): Results from the COMPANION Study

A longitudinal analysis using de-identified aggregate-level data collected through the AC-PSP [patient support program] was performed and a probabilistic matching algorithm was used to compare anonymized patient-level records from the AC-PSP database to records from the IQVIA anonymized longitudinal prescription transactions database. Multivariable regression analysis demonstrated a 23% increased likelihood of controlled disease in patients who received CCCs relative to those who did not (RR = 1.23; 95% confidence interval, 1.06–1.42; p = 0.0055). AS patients receiving tailored services through the AC-PSP in the form of CCCs have an increased likelihood of controlled disease within 6–18 months.

Louis Bessette, Department of Medicine, Laval University; Carter Thorne, Southlake Regional Health Centre, Newmarket; Gerald Lebovic, Applied Health Research Centre, St. Michael's Hospital; Institute of Health Policy, Management and Evaluation, University of Toronto; Brad Millson, Katia Charland, Krishna Donepudi, QuintilesIMS; Tania Gaetano, Valencia Remple, Martin Latour, Marie-Claude Laliberté, AbbVie Corporation. Published in Clinical Therapeutics / Volume 40, Number 3, 2018.

Impact of adalimumab's patient support program on clinical outcomes in inflammatory bowel diseases: Results from the COMPANION Study

To compare the likelihood of achieving clinical remission (according to the HBI score) in CD patients treated with HUMIRA® enrolled in the AbbVie Care PSP between those receiving CCCs versus those not receiving CCCs. A longitudinal retrospective study was conducted using de-identified aggregated patient level data collected through the AbbVie Care™ PSP. CD patients receiving tailored services through the AbbVie Care™ PSP in the form of CCCs have a significantly increased likelihood of achieving HBI remission within 6 to 18 months from their initial HBI assessment. The improved clinical remission among CD patients could be justified in part by the increased persistence and adherence observed among patients in AbbVie Care™ PSP in a previous published study. A secondary analysis was performed limiting the analysis to patients that were persistent on therapy and the results remained consistent, suggesting the impact of the CCC services is not limited to improved persistence on HUMIRA® alone.

John K. Marshall, Neeraj Narula, Department of Medicine, Division of Gastroenterology, Farncombe Family Digestive Health Research Institute; McMaster University; Brad Millson, Katia Charland, Michael Sung, QuintilesIMS; Tania Gaetano, Kevin McHugh, Martin Latour, Marie-Claude Laliberté, AbbVie Corporation.

Canadian study of adherence outcomes in HUMIRA® (adalimumab) patients: Three-year results from the COMPANION Study in gastroenterology patients

To assess the impact of patient characteristics (e.g. sex, age, diagnosis) and HUMIRA® PSP services (e.g. ongoing CCCs) on persistence and adherence to HUMIRA® over a 3-year period in the all-indication cohort and in a separate cohort of patients with CD and UC. A probabilistic matching algorithm4 was developed to link patients in the HUMIRA® PSP database to patient-level medication transaction (LRx) data. Among patients in all-indication cohort as well as patients with IBD diseases, after controlling for confounders, ongoing care coach calls had a statistically significant association with greater persistence and adherence to HUMIRA® over the first 36 months of treatment. Male patients and older age groups (40-49, 50-59, 60-69, 70+) were significantly more persistent to HUMIRA®. Older age groups (40-49, 50-59, 60-69, 70+) were also significantly more adherent to HUMIRA®. These insights may help refine interventions aiming at improving treatment persistence and adherence.

John K. Marshall, Department of Medicine, Division of Gastroenterology, Farncombe Family Digestive Health Research Institute; McMaster University; Brad Millson, Michael Sung, IMS Brogan; Tania Gaetano, Martin Latour, Marie-Claude Laliberté, AbbVie Corporation.

ADHD prevalence & treatment patterns

In 2017, a major policy and political challenge emerged regarding the possible over-treatment of Quebec school-aged children with ADHD class products. INESSS' primary challenge was the unavailability of non-publicly reimbursed data and comparator information from other provinces. IQVIA worked with the INESSS study protocol to produce a 12-month projected view of all Canadian provinces, including:

- Number of units and dispensing events of ADHD medications
- Estimates of the unique number of patients by age and sex combination
- Further division of Quebec estimates to compare regions

INESSS took these projected patient estimates and combined with population counts in order to calculate incidence and prevalence of treatment by age, sex and province. INESSS was able to publish a comparative portrait of treatment patterns revealing the significantly higher prescribing patterns in Quebec, compared to the rest of the country.

Understanding the impact of card programs on patient persistence and compliance in Ontario

Anonymized longitudinal patient prescription data from IQVIA for a second-line genericized diabetes molecule were examined for two cohorts (new start and ongoing patients) in Ontario in 2016 to better understand the relationship between patient cards and persistence, utilization, and compliance. Patients were split into three groups for comparison; those who made use of a card for the brand, those who used the brand without a card, and those who used a generic version. Patients who used cards had significantly higher persistence than those who used a brand or generic alternative, while there was no significant difference between brand and generic users. Preliminary analysis of ongoing patients shows that utilization in the period after card use was higher than in the period prior to card use, however a longer time horizon is required to assess the absolute impact. This study showed that card programs have a role to play in increasing patient adherence, and impact ongoing utilization as the level of financial support grows.

Allan F. Gillman PhD; QuintilesIMS.

Canadian study of adherence outcomes in HUMIRA® (adalimumab) patients – Three-year results from the COMPANION Study

To assess the impact of patient characteristics (e.g. sex, age, diagnosis) and HUMIRA® PSP services (e.g. CCCs) on persistence and adherence to HUMIRA® over a 3-year period. A probabilistic matching algorithm4 was developed to link patients in the HUMIRA® PSP database to patient-level medication transaction (Rx) data. After controlling for confounders, CCCs had a statistically significant association with greater persistence and adherence to HUMIRA® over the first 36 months of treatment among all patients as well as patients in GASTRO, RHEUM and DERM cohorts. Male patients and older age groups (50-59, 60-69, 70+) were significantly more persistent to HUMIRA®. Older age groups (40-49, 50-59, 60-69, 70+) were also significantly more adherent to HUMIRA®. These insights may help refine interventions aiming at improving treatment persistence and adherence.

Martin G. Latour, Tania Gaetano, Marie-Claude Laliberté, AbbVie Corporation; John K. Marshall, Department of Medicine, Division of Gastroenterology, Farncombe Family Digestive Health Research Institute; McMaster University; Louis Bessette, Department of Medicine, Laval University; Neil H. Shear, Faculty of Medicine, University of Toronto; Department of Medicine, Division of Dermatology, Sunnybrook Health Sciences Centre; Brad Millson, QuintilesIMS.

Canadian study of adherence outcomes in HUMIRA® (adalimumab) patients – Three-year results from the COMPANION Study in rheumatology patients

To assess the impact of patient characteristics (e.g. sex, age, diagnosis) and HUMIRA® PSP services (e.g. ongoing CCCs) on persistence and adherence to HUMIRA® over a 3-year period in the all-indication cohort and patients with RA and SpA. After controlling for confounders, ongoing care coach calls had a statistically significant association with greater persistence and adherence to HUMIRA® over the first 36 months of treatment among patients in all-indication cohort as well as patients with RA and SpA diseases. Male patients and older age groups (40-49, 50-59, 60-69, 70+) were significantly more persistent to HUMIRA®. Older age groups (40-49, 50-59, 60-69, 70+) were also significantly more adherent to HUMIRA®. These insights may help refine interventions aiming at improving treatment persistence and adherence.

Louis Bessette, Department of Medicine, Laval University; Brad Millson, Michael Sung,IMS Brogan; Tania Gaetano, Martin Latour, Marie-Claude Laliberté, AbbVie Corporation.

Center for ffective Practice (Ontario) - analysis of opioid prescribing in Ontario

In 2017, IQVIA worked with the Center for Effective Practice ("CEP") which aims to better understand the prescribing of opioids in Ontario. CEP is a not-for-profit organization funded by the Ontario government that works with different organizations in the Ontario health network. For opioids, the CEP wished to establish guidelines adapted to primary care. The first phase of the study provided an overview of opioid prescribing and its trends at the subregional level in order to identify areas with high volume of opioid use. IQVIA used its expertise and its database of anonymized prescription information to produce an analysis of the total volume of opioid prescriptions by molecule and by medical specialty of physicians. The results were also segmented by sub-region over the prior 12 months and became the groundwork for a possible academic research initiative.

Patterns of etanercept dose adjustments in a real–world setting: A Canadian retrospective cohort study

To describe etanercept treatment dynamics, including dose de-escalation/escalation in the Canadian real-world setting. A retrospective cohort study was conducted using longitudinal prescription drug claims data from QuintilesIMS Private Drug Plan database (PDP), Ontario Public Drug Plan database (OPDP), and Quebec Public Drug Plan database (RAMQ). Data was collected nationally for patients on private plans, and from Ontario and Quebec for public plans. Patients that received an etanercept prescription between July 1, 2014 and June 30, 2015 were selected. In Canadian real-world practice, the average patient utilization of etanercept remained consistent over the first year in the majority of patients, with the exception of those with PsO. A notable proportion of etanercept patients with rheumatic diseases reduced their average dosing over time while on therapy, with almost twice as many patients titrating their dose downwards than upwards. In PsO patients, a majority of patients increased their etanercept dosing versus monograph.

Khraishi, Majed MD FRCPC, Faculty of Medicine, Memorial University of Newfoundland; Zhang, Yvonne MA, Ivanovic, Jelena MSc PhD, Millson, Brad MBS, Health Access and Outcomes, QuintilesIMS; Singh, Ena MD MBA, Jones, Heather RN, Inflammation and Immunology, Global Medical Affairs, Pfizer Inc; Woolcott, John MA PhD, Health Economics and Outcomes Research, Pfizer Inc.

Real-world utilization of concomitant medications in patients initiating etanercept: A retrospective cohort study of Canadian claims-level data

To evaluate whether initiation of etanercept impacts use of co-therapy with MTX or pred in Canadian patients with IMIDs. A retrospective cohort study was conducted using claims-level data from QuintilesIMS Private Drug Plan (PDP) database, Ontario Public Drug Plan (OPDP) database, and Quebec Public Drug Plan (RAMQ) database. Patients that received an etanercept prescription between July 1, 2014 and June 30, 2015 were selected. In this real-world setting, approximately one in five patients stopped or reduced co-therapy of MTX; and one third of patients stopped or reduced co-therapy of pred following initiation of etanercept. Patients who remained on co-therapy showed non-significant changes in their average consumption.

Khraishi, Majed MD FRCPC, Faculty of Medicine, Memorial University of Newfoundland; Zhang, Yvonne MA, Ivanovic, Jelena MSc PhD, Millson, Brad MBS, Health Access and Outcomes, QuintilesIMS; Singh, Ena MD MBA, Woolcott, John MA PhD, Jones, Heather RN, Inflammation and Immunology, Global Medical Affairs, Pfizer Inc.; Health Economics and Outcomes Research, Pfizer Inc.

Long-term etanercept retention patterns and factors associated with treatment discontinuation: A retrospective cohort study using Canadian claims-level data

To evaluate the 6-year retention rates of etanercept in patients with RA, PsA, PsO, and AS in Canada, and to identify factors associated with treatment discontinuation. A retrospective cohort study was conducted using longitudinal prescription drug claims data from QuintilesIMS Private Drug Plan database (PDP), Ontario Public Drug Plan database (OPDP), and Quebec Public Drug Plan database (RAMQ). Etanercept patient retention likelihood increased the more years a patient was retained on therapy. This pattern was consistent across therapeutic areas, sex, age, and payers. Age, indication, and payer were found to have a significant impact in determining etanercept patients' time to therapy discontinuation.

Khraishi, Majed MD FRCPC, Faculty of Medicine, Memorial University of Newfoundland; Zhang, Yvonne MA, Ivanovic, Jelena MSc PhD, Millson, Brad MBS, Health Access and Outcomes, QuintilesIMS; Singh, Ena MD MBA, Woolcott, John MA PhD, Jones, Heather RN, Inflammation and Immunology, Global Medical Affairs, Pfizer Inc.; Health Economics and Outcomes Research, Pfizer Inc.

Average time to patient access from drug approval: An analysis of Ontario & Quebec

The objective of this study was to determine the average time from Health Canada approval to provincial reimbursement in Ontario and Quebec for novel oncology drugs. Time to first private claim will also be assessed as a comparison. Health Canada's "Notice of Compliance (NOC)" database was used to identify the date of "new active substances" in oncology approved from January 1, 2012 until December 31, 2016. For public reimbursement data in Ontario, the pan-Canadian Oncology Drug Review (pCODR) was used to determine the date of listing for each drug. For listing data in Quebec, the Institut national d'excellence en santé et en services sociaux (INESSS) was used to determine the date of listing for each drug. Prescription claims from a private pay-direct drug plan database that includes all major insurance providers in Ontario and Quebec were provided by QuintilesIMS to determine the date of first private claim. The median days from NOC to provincial listing was similar between Ontario and Quebec. Private insurance plans continue to reimburse novel oncology treatments in a shorter timeframe than public programs.

Samantha Bremner, Marc Lapierre, Arushi Fraelic, David Stewart, Brad Millson, QuintilesIMS.

Prevalence of primary biliary cholangitis in Canada: First national study

The objectives of this study were to estimate and characterize the prevalent PBC population and associated PBC liver transplant recipients across Canada. Specifically this study will: a) Estimate the prevalence of PBC - b) Describe the PBC patient population c) Estimate the prevalence of PBC liver transplants d) Describe the PBC liver transplant population. This study reports the first Canadian national and regional PBC prevalence estimates, demonstrating the burden of PBC in Canada is high and growing. Maritime Provinces have the highest prevalence of PBC in Canada, and given the significant genetic component in PBC's etiology, this observation is possibly due to a founder effect. Even with ubiquitous access to UDCA, PBC is still the number one reason for liver transplants in females, has a high proportion of its patients classified as late-stage, and represents a significant burden on the healthcare system highlighting the need for further treatment options.

EM Yoshida, Division of Gastroenterology, University of British Columbia; S Thiele, A Fischer, M Hux, R Borrelli, QuintilesIMS; A Mason, University of Alberta; H Shah, University of Toronto; K Peltekian, Dalhousie University.

Cost-effectiveness of the Aerobika* oscillating positive expiratory pressure device in the management of COPD exacerbations

This study sought to determine the impact on exacerbations and costs and to determine the cost-effectiveness of the Aerobika* device. Data from published literature and national fee schedules were used to model the cost-effectiveness of the Aerobika* device in patients who had experienced an exacerbation in the previous month, or a post-exacerbation care population. The Aerobika* device is a cost-effective treatment option that provides clinical benefit and results in direct medical cost savings in a post-exacerbation care COPD population.

Shoghag Khoudigian-Sinani, Faculty of Health Sciences, Department of Health Research, Methods, Evidence and Impact, McMaster University; Stacey Kowal, QuintilesIMS; Jason A Suggett, Trudell Medical International; Dominic P Coppolo, Monaghan Medical Corporation.

2016

Characteristics of patients with mild to severe asthma in Canada

To compare patient characteristics, eosinophil levels, markers of asthma control, and risk of comorbidities in asthma patients categorized by disease-severity defined by medication requirements in the Global Initiative for Asthma (GINA) guidelines. Utilizing longitudinal patient medical records for approximately 1,000,000 patients presenting to outpatient clinics in Ontario, Canada. Our study in Canadian patients corroborates the findings of Price et al. (2015) and Fitzgerald et al. (2006) that severe asthma is associated with elevated EOS, and with poorer asthma control. High blood EOS levels were found to be associated with uncontrolled asthma, supporting that blood eosinophils should be routinely obtained in asthma patients and monitored as possible predictors of severity and poor control. When controlling for age and sex, correlations were found between depression and asthma, as well as between rhinosinusitis and asthma; associations with other comorbidities require further investigation.

Sebastien K Gerega, Brad Millson, Katia Charland, QuintilesIMS; Stephane Barakat, Ricardo Jimenez, Teva Pharmaceutical Industries; Xichun Sun, Teva Pharmaceutical Industries; Susan Wasserman, McMaster University; J Mark FitzGerald, The Vancouver Lung Centre.

Utilization of radium-223 dichloride (ra-223) in patients with metastatic castration-resistant prostate cancer in Canada: A real-world retrospective study

To assess the use of Ra-223 in metastatic castration-resistant prostate cancer (mCRPC) patients with bone metastases using real-world data. This retrospective observational study utilized IMS Brogan Real-World Oncology Data, an anonymized patient database collected direct from specialists via electronic questionnaire spanning all relevant treatments and patient metrics. Bone-targeted therapy is still dominated by denosumab and bisphosphonates. However, Ra-223 is the first BTA to actually improve survival. The real-world data used in this analysis shows that Ra-223 is not only used in patients whose cancer has spread to the bones but also in those whose cancer has spread to other organs. Though commonly administered with abiraterone or enzalutamide, Ra-223 is also given alone. The majority of patients treated with Ra-223 show a Gleason score of 7 and the average (median) PSA values are lower at treatment than at diagnosis.

Lapierre M, Fraelic A, IMS Brogan.

A quantitative evaluation of the growth in non-physician prescribing in Canada and the resultant impact to key provinces and therapeutic areas

IQVIA's GPM retail pharmacy prescription database (July 2013 to June 2016) was used for this analysis. This database is projected to cover all retail pharmacy prescriptions in Canada and includes information on prescribers, therapeutic class, products and provinces. Canadian NPP growth has continued to expand at a marked rate in recent years. Differential provincial legislation is resulting in varied regional non-physician prescriber foci. Ontario nurses are the current drivers of NPPs, while Quebec pharmacists have seen the largest NPP growth since Bill 41 passing. Chronic illnesses such as cardiovascular disease, diabetes and hyperlipidemia were among the top 10 therapeutic classes with NPP prescribing. Interestingly, over 400,000 narcotic analgesic NPPs have been dispensed nationally from July 2015 to June 2016, with Quebec and Alberta pharmacists accounting for the majority of these prescriptions.

Shojaie S, Trickett R, Dobson-Belaire WN, QuintilesIMS.

Interprovincial variation in antipsychotic and antidepressant prescriptions dispensed in the Canadian pediatric population

Although antidepressants and antipsychotics are valuable medications in the treatment of select psychiatric disorders, there is increasing focus on the balance of risks and benefits of these drugs as prescribed, particularly in the pediatric population. Examined recent national trends and interprovincial variation in dispensing of antipsychotic and antidepressant prescriptions to the Canadian pediatric population. Conducted a population-based cross-sectional study of antidepressant and antipsychotic prescriptions dispensed by Canadian pharmacies to the pediatric population (≤18 years) between 2010 and 2013. Prescription volumes were obtained from IMS Health. Antipsychotic and antidepressant dispensing to the Canadian pediatric population increased from 2010 to 2013, with considerable interprovincial variation.

Nikita Arora, BHSc, Sandra Knowles, BScPhm, ACPR, RPh, Tara Gomes, MHSc, Muhammad M. Mamdani, PharmD, MA, MPH, David N. Juurlink, MD, PhD Corine Carlisle, MD, MSc, Mina Tadrous, PharmD, Ph. Published in The Canadian Journal of Psychiatry / La Revue Canadienne de Psychiatrie 2016, Vol. 61(12) 758-765.

Estimating Canadian heart failure prevalence using prescription treatment patterns

This study provided nationally robust Canadian prevalence rates for treated heart failure (HF) using a predictive model applied to a national prescription database. IQVIA estimated 657,902 Canadians ≥18 years of age were treated for HF in 2014, which aligned well with literature prevalence estimates. This study strengthens the literature by updating HF prevalence estimates and providing an additional triangulation point to identify the true population HF prevalence.

Jobin Gervais K, Zaour N, Novartis Pharmaceuticals Canada Inc.; Caron J, Borrelli R, Fischer A, IMS Brogan.

The burden of gout in Ontario, Canada: A study of healthcare resource utilization in a Canadian public payer context

Objectives: Describe the demographic and comorbidity profile of incident gout patients in Ontario and estimate the incremental resource utilization and healthcare costs associated with the first 5 years of gout. A retrospective case-control study design was used to analyse

Ontario administrative health records housed by the Institute for Clinical Evaluative Sciences (ICES). Outpatient, inpatient, home care, and Ontario Drug Benefit reimbursed prescriptions were linked for analysis by an anonymized Ontario Health Insurance Plan (OHIP) health card number. Prior to gout onset, gout patients showed a higher prevalence of renal disease as compared to matched gout-free patients. Following the onset of gout, patients in Ontario incur significantly greater healthcare costs and healthcare resource use compared to matched gout-free patients. Alternative gout management strategies should be investigated to reduce the incremental economic and resource burden of gout borne by the Ontario healthcare system.

Williams DM, Cowan C, Gendron A, AstraZeneca Canada; Goodfield J, Cloutier M, Fischer A, Borrelli R, Dziarmaga A, IMS Brogan, A Unit of IMS Health.

Real-world comparison of metastatic melanoma treatments between academic and community hospitals in Canada: A retrospective study

The objective of this study was to compare metastatic melanoma drug treatment between academic and community hospitals in Canada using real-world data. This retrospective observational study utilized IMS Brogan Real-World Oncology Data, an anonymized patient database collected directly from specialists via electronic questionnaire spanning all relevant treatments and patient metrics. An analysis of stage IV melanoma patients, treated in Canada between October 2014 and September 2015 was conducted. The real-world data used in this analysis has demonstrated differences in therapies between academic and community hospitals. Immunotherapy is more common in academic hospitals than in the community setting ($p<0.05$).

Marc Lapierre, IMS Brogan, A unit of IMS Health.

Canadian study of outcomes in HUMIRA® (Adalimumab) patients with support for adherence - Dermatology results from the COMPANION Study

To assess the impact of patient characteristics (e.g., sex, age, diagnosis) and HUMIRA® PSP services (e.g., ongoing CCCs) on persistence and adherence to HUMIRA®. To assess the impact of initial CCCs on treatment abandonment (failure to initiate therapy after enrollment in the PSP). A probabilistic matching algorithm was developed to link patients in the HUMIRA® PSP database to patient-level medication transaction (Rx) data. Patients who started HUMIRA® therapy between July 2010 and August 2014 were selected and indexed on the date of their first script during this period. After controlling for confounders, ongoing care coach calls had a statistically significant association with greater persistence and adherence to HUMIRA® over the first 12 months of treatment in all patients including patients with PsO disease. Treatment abandonment rate was significantly higher in patients who were enrolled in PSP but did not receive an initial care coach call. Male patients and older age groups (40-49, 50-59, 60-69, 70+) were significantly more adherent to HUMIRA®.

Neil H. Shear, Faculty of Medicine, University of Toronto; Department of Medicine, Division of Dermatology, Sunnybrook Health Sciences Centre; Louis Bessette, Department of Medicine, Laval University; John K. Marshall, Department of Medicine, Division of Gastroenterology, Farncombe Family Digestive Health Research Institute; McMaster University; Gerald Lebovic, Applied Health Research Centre, St. Michael's Hospital, Institute of Health Policy, Management and Evaluation, University of Toronto; Sebastien Gerega, Brad Millson, IMS Brogan; Tania Gaetano, Sandra Gazel, Martin Latour, Marie-Claude Laliberté, AbbVie Corporation.

Characterization of statin effectiveness using real-world data in a Canadian population

Project Aims: 1. Characterize the demographic profiles of Canadian statin-treated patients within an electronic medical record database, IMS Brogan E360 EMR database; 2. Describe the effect of statin treatment on patient LDL levels and change in CVD risk determined by the FRS within the first year of LDL initiation; 3. Validate the use of FRS for determining CVD risk by comparing FRS to cardiovascular event-related ICD-9 diagnosis code frequency in patients. Key findings: Statin therapy initiation significantly reduces LDL levels and calculated FRS within the first year of initiation; calculated FRS is a valid measurement of cardiovascular disease risk, based on reported CVD diagnosis code frequency; overall, statin therapy had limited impact on the 10-year risk of adverse cardiovascular event occurrence during the first year of therapy, as neither FRS sub-cohort dropped in risk group during the study period.

Sheri Shojaie, Sherri Thiele, Katia Charland, Wendy N. Dobson-Belaire, Marc Duclos, Richard Borrelli, IMS Brogan; Sean McCurdy, University of Toronto, Laboratory Medicine Pathology; Lucy Ching Chau, Lindsay Martin, University of Toronto, Masters of Management of Innovation.

Canadian study of outcomes in HUMIRA® (adalimumab) patients with support for adherence - Results from the COMPANION Study

To assess the impact of patient characteristics (e.g. sex, age, diagnosis) and HUMIRA® PSP services (e.g. ongoing CCCs) on persistence and adherence to HUMIRA® and to assess the impact of initial CCCs on treatment abandonment (failure to initiate therapy after enrollment in the PSP). A probabilistic matching algorithm was developed to link patients in the HUMIRA® PSP database to patient-level medication transaction (Rx) data. Patients who started HUMIRA® therapy between July 2010 and August 2014 were selected and indexed on the date of their first script during this period. After controlling for confounders, ongoing care coach calls had a statistically significant association with greater persistence and adherence to HUMIRA® over the first 12 months of treatment in all patients including patients with CD or UC disease. Treatment abandonment rate was significantly higher in patients who were enrolled in PSP but did not receive an initial care coach call. Male patients and older age groups (40-49, 50-59, 60-69, 70+) were significantly more adherent to HUMIRA®.

Martin Latour, Tania Gaetano, Sandra Gazel, Marie-Claude Laliberté, AbbVie Corporation; Sebastien Gerega, Brad Millson, Michael Sung, Driss Oraichi, IMS Brogan; Louis Bessette, Department of Medicine, Laval University; John K. Marshall, Department of Medicine, Division of Gastroenterology, Farncombe Family Digestive Health Research Institute, McMaster University; Gerald Lebovic, Applied Health Research Centre, St. Michael's Hospital; Institute of Health Policy, Management and Evaluation, University of Toronto.

Prescription factors associated with a 'do not substitute' prescription in Canada

The study investigated factors associated with a DNS prescription to help payers and pharmaceutical companies better understand when a DNS is indicated. The IMS Health Brogan (IMS) E360 Canadian electronic medical record database was queried for all adult prescriptions for molecules with an approved generic recorded between October 2009 and September 2010. Patient demographics, long-term use, and some ATC3 classes are associated with DNS prescriptions. Payers may consider these relationships to better understand their exposure when generic options become available, while pharmaceutical manufacturers can better estimate the demand for their products while considering the impact of DNS.

Fischer A.A., Duclos M., Borrelli R., IMS Health Canada. Publication: ISPOR VOLUME 19, ISSUE 3, PA288-A289, MAY 01, 2016.

No substitution: Not just for physicians anymore

This study identified the top 16 no substitution products (14 brands) in Ontario and leveraged over 200,000 prescriptions from ten outlets over a two year period. Prescription signa were examined to help identify who directed the no substitution, while other fields like reimbursement were used to provide further definition to this phenomenon. Understanding the relationship between NS and brand prescribing is challenging at the best of times and has grown even more so as patients have started to assert brand preferences. Traditional views of who drives NS and the fields used to track/examine NS are no longer adequate. Patients now drive more NS scripts than physicians, and only half of the NS volume is being captured in a dedicated field. As a result, new approaches are needed to better understand and address knowledge gaps in this area.

Allan F. Gillman PhD; Aren Fischer MSc, QuintilesIMS.

pCPA/CDR/pCODR changes and impact to market access in Canada

This study looks at tracking the impact of these changes using several access metrics, including provincial reimbursement rates (RR) and time to listing (TTL) to understand how they are impacting public access to new medicines in Canada. IMS Brogan iMAM™ Database was used to gather provincial listing data for all drugs selected in this study. Publicly accessible sources including Common Drug Review (CDR), the pan-Canadian Oncology Drug Review (pCODR) and the pan-Canadian Pharmaceutical Alliance (pCPA) were used to determine submission dates, recommendation dates, recommendation decisions and negotiation outcomes. These findings revealed that, in the most recent year of 2015, HTA review productivity has increased, with decreasing review times vs. 2014 and a much greater throughput. In addition, the pre-NOC review option has made a major impact in reducing the time to HTA decision and accelerating access to new medicines for public plan patients.

Brad Millson, Yvonne Zhang, IMS Brogan, A unit of IMS Health.

A novel method using prescription treatment patterns to estimate heart failure prevalence in Canada

The objective of this study is to identify treated Canadian HF patients through the development of a model using retail prescription patterns from a national database to validate and build upon Canadian literature prevalence estimates. Utilizing IMS Brogan's (IMS) E360 Canadian Electronic Medical Record (EMR) database and IMS Brogan's Longitudinal (LRx) database. The model's Canadian HF prevalence estimates closely match values found in literature both in overall and age stratified prevalence. As of 2014, approximately 2.31% of Canadians aged ≥18 is treated for HF. Overall, this study provides a mechanism to calculate detailed prevalence estimates in Canada when applied to retail prescription data.

Jobin Gervais K, Zaour N, Novartis Pharmaceuticals Canada Inc.; Caron J, Borrelli R, Fischer A, IMS Brogan.

Comparing guidelines for statin prescription standards to real-world prescription practices in Canada

Objectives: Characterize and validate the demographic profiles of Canadian statin-treated patients within an electronic medical record database, IMS Brogan E360 EMR database (version 2015-04-24). Determine how well real-world statin prescribing practices align with CCS guidelines. The statin-treated population within the described cohort aligned closely with published population demographics and physiological distributions. Within the low and intermediate-risk categories respectively, 93% and 56% of patients were treat-ed with statins despite not meeting CCS statin-prescribing guidelines for LDL criteria. Based on LDL measures and FRS scores, 65% of the total cohort was not within the CCS guidelines.

Sherri Thiele, University of Toronto, Division of Neurosurgery; Sheri Shojaie, University of Toronto, Department of Physiology; Sean McCurdy, University of Toronto, Laboratory Medicine Pathology; Lucy Ching Chau, Lindsay Martin, University of Toronto, Masters of Management of Innovation; Katia Charland, Wendy N. Dobson-Belaire, Marc Duclos, Richard Borrelli, IMS Brogan, A unit of IMS.

Metastatic melanoma patient characteristics as a determining factor for BRAF gene mutation testing and treatment in Canada — A retrospective cohort study

The objective of this study was to assess the utilization rate of BRAF testing in patients with stage IV metastatic melanoma, and to try to determine whether there were any significant differences in patient characteristics between the tested and non-tested groups. Also, the aim was to verify if there were any differences in drug treatment approaches between those who were not tested and those tested but with a negative result for BRAF mutation. This retrospective observational study used IMS Brogan's Enhanced Tumour Studies (ETS), an anonymized patient database collected through quarterly physician panel surveys, which provides comprehensive insight into total cancer care. Patients' characteristics emerged as an important factor for determining diagnostic and treatment protocols for metastatic melanoma patients in Canada. Younger patients (<50) and those with none or only one co-morbidity, but with more metastases were more likely to be tested for BRAF mutations. Moreover, those who were tested but are BRAF-negative were more likely to be treated with ipilimumab than those who were not tested for BRAF mutation. BRAF testing appears to be more prevalent in academic centers than in community hospitals.

Djokic S, Lapierre M, IMS Health Canada.

Excess healthcare resource utilization in obesity pharmacotherapy candidates in Canada

To evaluate the incremental Healthcare Resource Utilization (HRU) associated with pharmacotherapy candidates and examine the relationship between obesity and HRU in an Ontario (Canada) population. IMS Evidence360 electronic medical records database containing deidentified longitudinal records for over 900,000 patients in an outpatient setting in Ontario, Canada. As an individual's BMI increased there was a parallel increase in the observed number of co-morbidities, physician visits, sick notes and referrals. Similarly, greater healthcare resource utilization and risk of co-morbidities were observed for individuals fitting the pharmacotherapy candidate profile. As a result, this study demonstrates a significant increase in the burden to the healthcare system from people with obesity compared to people without obesity.

Tahir Feroz, Rasmus Skovgaard, NovoNordisk Canada Inc.; Katia Charland, Sarah Heembrock, Richard Borrelli, IMS Brogan Canada.

Second-line drug regimens in metastatic melanoma patients based on BRAF mutation status: A Canadian real-world retrospective study

This study describes the second-line drug regimens in these patients based on their BRAF mutation status. This retrospective observational study utilized IMS Health Real-World Oncology Data, an anonymized patient database which includes patient and treatment metrics. The second-line landscape in metastatic melanoma is now dominated by immuno- and targeted-therapies in Canada. The synergistic effects of combining these two modalities are currently an area of research and this practice has been captured in our dataset. This study provides real-world evidence of the use of immuno- and targeted-therapies in patients with metastatic melanoma.

Samantha Bremner, Marc Lapierre, Arushi Fraelic, Dave Stewart, IMS Health Canada.

Real-world assessment of biologics dose elevation in a Canadian psoriasis population

The objective of this research was to quantify the real-world prevalence and extent of adalimumab, etanercept, infliximab, and ustekinumab dose elevation in a population of Canadian patients with psoriasis. The study was conducted using IMS Brogan's Canadian national private drug plan (PDP) and Ontario's (OPDP) and Quebec's (RAMQ) provincial public drug plan databases. All three are administrative claims-based databases with ~70% national market coverage for PDP and 100% and 75% market coverage for OPDP and RAMQ, respectively. Dose elevation is prevalent in all major biologics used to treat psoriasis for at least 1 year and leads to increased costs. Etanercept had the highest prevalence and shortest time to dose elevation.

Neil H. Shear MD, University of Toronto; Wendy Dobson-Belaire PhD MBA, Ginger Tey MASc, Richard Borrelli MBA, IMS Brogan; Fei Liu BSc(Pharm) MBA, Celgene Inc.; Zeba M. Khan RPh PhD, Celgene Corporation, USA.

Real-world assessment of psoriasis medication costs associated with biologics treatment in a Canadian psoriasis population

The high efficacy of biologic therapies has had a positive impact on patients suffering from moderate to severe forms of psoriasis. Objective: Quantify the per-patient first-year cost of psoriasis treatment after initiating biologics in a Canadian psoriasis patient population. The study was conducted using IMS Brogan's Canadian national private drug plan (PDP) and Ontario (OPDP) and Quebec (RAMQ) provincial public drug plan databases. All 3 are administrative claims–based databases, with ~70% national market coverage for PDP and 100% and 75% market coverage for OPDP and RAMQ, respectively. Biologic treatments represent significant changes to the treatment paradigm of psoriasis. However, they represent a substantial medication cost burden, which can be further amplified by the impact of dose elevation. Our research suggests that the cost of biologic treatment in Canada may be even higher than previous estimates when considering the need for additional therapies or higher doses in some patients.

Neil H. Shear MD, University of Toronto; Wendy Dobson-Belaire PhD MBA, Ginger Tey MASc, Jason Goodfield BSc/HBA, IMS Brogan; Fei Liu BSc(Pharm) MBA, Celgene Inc; Zeba M. Khan RPh PhD, Celgene Corporation, USA.

Use of attention-deficit/hyperactivity disorder (ADHD) drugs in Canada, 2010-2014

To describe utilization patterns of ADHD drugs over the last 5 years in Canada. Specific objectives are to determine the usage of ADHD drugs by number of prescriptions filled at drugstores, stratified by age group, gender and prescribing physician specialty; describe the population being treated with atomoxetine and estimate the medication possession ratio (MPR) as a measure of compliance and the gap time between prescriptions for atomoxetine. Two IMS databases were utilized in this investigation: IMS Compuscript Audit (CS) database from 2010-2014, and IMS Lifelink (LRx) database 2013. Prescriptions of all ADHD drugs in Canada have increased from 2010 to 2014, in particular among females aged 19-65 years of age. This may reflect that ADHD symptoms continue into adulthood, especially in females. Family physicians/GPs, pediatricians and psychiatrists are the practitioners that most prescribe treatment for ADHD. Children aged 6-18 years account for most of the prescriptions of ADHD drugs and are also the most likely group to go on a drug holiday during the summer months. This discontinuation of medications is reflected in the less than ideal MPR for atomoxetine.

Aziz S, Griffiths J, Marketed Health Products Directorate, Health Canada; Gillman A, IMS Brogan.

Psoriasis treatment progression and biologic utilization: A Canadian retrospective study

Objective: Describe the treatment progression for Canadian psoriasis patients from their first non-biologic systemic (NBS) therapy through biologic (BLx) therapy, generally the last available treatment option. This is a retrospective analysis of psoriasis patients within Canadian private and public medication claims databases from October 2007 to September 2013. The role of NBS and BLx medications in treatment progression was described over a 3-year period. High discontinuation of therapy among psoriasis patients treated with current NBS products suggests potential patient dissatisfaction with pre-BLx treatment options. BLx treatment, often the last available option, shows a similar trend, with 69% of patients discontinuing their first BLx within 3 years of initiation. Thus, a need exists for novel psoriasis treatment strategies.

Neil H. Shear MD FRCPC, Department of Medicine (Dermatology, Clinical Pharmacology), University of Toronto and Sunnybrook Health Sciences Centre; Wendy N. Dobson-Belaire PhD, Ginger Tey MASc, Kristen Reidel MSc, IMS Brogan, a unit of IMS Health; Fei Liu BSc(Pharm) MBA, Celgene Inc; Zeba M. Khan RPh PhD, Celgene Corporation, USA.

Access to new medicines in public drug plans: Canada and comparable countries 2016 Annual Report

This study compares public drug plan coverage against the particular basket of new medicines approved for sale within each country. The study examined access to new medicines in the context of the health care systems across a group of countries that are most comparable to Canada in terms of economic development. When only considering products that were reimbursable across provinces accounting for at least 80% of the eligible national public drug plan population, Canada ranked 18th of 20 countries with only 37% of new medicines receiving public reimbursement across the country. In Canada, the wait from national marketing approval to public drug plan reimbursement was 449 days across provinces comprising 80% of the eligible national public drug plan population, ranking Canada 15th of 20 countries.

Brad Millson, Sherri Thiele, Yvonne Zhang, Wendy Dobson-Belaire, IMS Health Canada; Brett Skinner, Innovative Medicines Canada. Publication: Innovative Medicines Canada, 2016.

2015

The analysis of etanercept treatment patterns and reimbursement gaps in patients transitioning from private to public drug plans

To estimate the reimbursement gap duration (median and distribution) when an Enbrel® patient transitions from private to public plans and to characterize the treatment patterns and lines of therapy within disease-modifying antirheumatic drugs (DMARDs) and biologics after an Enbrel® patient transitions from a private to public plan. Utilized a retrospective longitudinal cohort study using patient-level medication transaction (Rx) data, patient selection period ranged from January 1st 2010 to June 30th 2013. The majority of patients showed evidence of a reimbursement gap when transitioning from private to public plans. A significant number of patients experienced a clinically meaningful (>21 days) reimbursement gap in Enbrel® coverage which may result in suboptimal clinical outcomes. No statistical difference in reimbursement gap was found based on gender, age, province, indication, or prior Enbrel® experience indicating equal access to care, although signals of higher gaps for younger patients was show. Patients transitioning to non-Enbrel® therapy following the transition to a public plan showed longer reimbursement gaps than those who continued on Enbrel® therapy.

Brad Millson, IMS Health Canada Inc; Melanie Poulin-Costello, Kirsten Garces, Amgen Canada.

Comparison of compliance and discontinuation rates among MS patients treated with fingolimod and other disease-modifying therapies: A Canadian retrospective claims analysis

This analysis evaluated the compliance and discontinuation rates in patients treated with fingolimod versus those treated with other oral, injectable or infusible therapies. The objective was to compare compliance and discontinuation rates in Canadian patients with RRMS treated with DMTs. This retrospective analysis using private claims data showed that a higher percentage of patients with a compliance rate of ≥80% was found in patients treated with fingolimod compared to patients treated with other DMTs after 6 month periods across Canada. Discontinuation rates after 6 month periods were lower with fingolimod than with other DMTs. This analysis provides the first insight into short-term compliance with DMTs in a Canadian real-world setting . Improved compliance may help achieve therapeutic goals and may be associated with improved clinical benefits.

Haddad P, Lamarche AM, Novartis Pharmaceuticals Canada Inc.; Duquette P, Notre Dame Hospital, Université de Montréal; Yeung M, University of Calgary, Multiple Sclerosis Clinic; Fraelic A, Chan S., IMS Brogan, a unit of IMS Health Canada Inc.

Recent developments in prescription opioid related dispensing and harm indicators in Ontario, Canada

Epidemiological observations from Ontario based on IQVIA data made for a compelling case study in the analysis of prescription opioid (PO) related harms and policy. While oxycodone formulations were responsible for extensive proportions of increases in strong PO dispensing and PO-related harms (specifically: overdose mortality) in Ontario pre-2010, changes related to this particular PO formulation drove respective reductions in overall PO dispensing as well as oxycodone-related deaths. A crucial intervention here likely was the Ontario government's decision (in March 2012) to delist controlled-release oxycodone formulations (e.g., Oxycontin and its successor product Oxy-Neo) from the provincial drug formulary, and hence to delete it from eligibility for reimbursement from the public drug plan (mostly extending coverage to individuals on social assistance programs).

Benedikt Fischer PhD, Wayne Jones MSc, Yoko Murphy BA, Anca Ialomiteanu MSc, and Jürgen Rehm, PhD. Published: Pain Physician 2015; 18:E659-E662 • ISSN 2150-1149.

Comparison of patient characteristics and chromosomal abnormalities by first-line treatment in chronic lymphoid leukemia (CLL) patients in Canada

This retrospective study investigates patient characteristics and genetic abnormalities by first-line treatment choice. This study utilized IMS Brogan Enhanced Tumor Studies, an anonymized patient database collected through quarterly physician panel survey, which provides comprehensive insight into total cancer care. Patient characteristics (including age, co-morbidities and ECOG performance status), genetic markers and first-line drug treatments were identified in CLL patients treated in Canada between October 2013 and September 2014. The analysis of first-line CLL patients in this study has identified differences in patient fitness and genetic markers. It therefore demonstrates the importance of these factors in determining treatment choice.

Marc Lapierre, IMS Brogan. Published : Journal of Clinical Oncology, Volume 33, Issue 15, 2015.

Prevalence of opioid dispensing and concurrent gastrointestinal medications in an elderly population from Ontario, Canada

This study describes the prevalence of outpatient opioid dispensing and the concomitant dispensing of opioids and GI medications in a population 65 years or older enrolled in the Ontario Drug Benefit Program in 2005. Methods: Using a retrospective cohort design, dispensing of opioids, laxatives, and acid suppressants were identified using claims reimbursement data. Concurrent dispensing were defined as having at least one "GI medication-dispensed day" overlapping an "opioid-dispensed day". Results: More than 18 percent of the elderly drug plan population was dispensed an opioid in 2005. Women had more opioid dispensing and were dispensed opioids for extended periods of time as compared with men. Approximately half of patients with an opioid dispensing were concomitantly dispensed a GI medication; these medications were dispensed nearly twice as frequently among people with chronic opioid dispensing when compared with people with nonchronic opioid dispensing. Although laxatives are commonly recommended in patients taking opioids, only half of the older adults in Ontario who were dispensed an opioid also received a concomitant GI medication dispensing.

Rachel Williams PhD MS, GSK; Nevzeta Bosnic BA, Michael Brogan, BA, IMS Brogan; Ashlee W. Duncan, PhD, MS, Suzanne F. Cook, PhD. Published: Journal of Opioid Management, 2015.

Canadian retrospective claim data analysis of biologics switching and retention patterns in psoriasis patients

To describe treatment patterns and costs for patients with PsO receiving biologic therapies (BT). A retrospective longitudinal cohort study using patient-level medication claims. Index period from January 1st, 2007, to March 30th, 2011. Enbrel® was the preferred first line therapy for PsO patients during the index period. 68% of PsO patients on BT either switched or discontinued therapy within 24 months, suggesting an unmet need exists for new treatment options in PsO. Private plan patients complementing their BT therapy with non-biologic PsO medications are significantly more likely to remain on first-line BT. Patients who switch BT will, on average, have higher annual medication costs in both public and private plans.

Brad Millson, IMS Health Canada Inc; Melanie Poulin-Costello, Kirsten Garces, Amgen Canada.

Using electronic medical records to better understand the relationship between testing, diagnosis and treatment of gonorrhea in Ontario

Anonymized longitudinal EMR patient data (IMS Evidence 360, Canada) were examined to better understand the relationship between the testing, diagnosis, and treatment of gonorrhea. A 42% increase in the volume of gonorrhea cases has been observed by Public Health Ontario (2012-14), with treatment resistant cases at just over 10%. This study leverages EMR data to validate these trends and provide additional insights related to patient treatment. Testing, diagnosis and treatment information by age, gender, and year were examined for cross-sectional cohorts from 2008 to 2014. A longitudinal cohort was also used to control for socio-demographic changes in the EMR patient panel. This analysis generally aligns with information from Public Health Ontario and provides insights beyond those currently available. It also demonstrates the value that EMR insights can bring to a challenging area such as STIs.

Allan F. Gillman PhD, IMS Brogan.

Reimbursement patterns for Enbrel® (etanercept) as senior patients transition from private to public drug plan insurance

To understand the scope of any gaps in ENBREL reimbursement as senior patients transition from private to public drug plan coverage. A retrospective longitudinal cohort study using pharmacy transaction data (IMS LRx database) from Ontario and Quebec pharmacies. This study confirmed that a significant number of patients experience a meaningful gap in reimbursement of ENBREL as they transition from private to public plans Suboptimal clinical outcomes could occur as a result Longer gaps in reimbursement in Quebec compared to Ontario also suggests regional differences may exist in the ease of accessing the public reimbursement system.

Kirsten Garces, Melanie Poulin-Costello, Amgen Canada; Brad Millson, IMS Health Canada.

The cost of acute care hospitalizations associated with chronic heart failure in Canada

The objective of this study is to compare the mean cost ($CAD) of a CHF, cardiovascular, and non-cardiovascular diagnosed hospitalization amongst acute care treated CHF diagnosed patients in Canada. A retrospective cross-sectional study design was used to calculate the average hospital costs and length of stay (LOS). Cardiovascular and non-cardiovascular hospitalizations result in higher mean hospitalization costs than those with a CHF MRDx. An opportunity exists for interventions reducing the number of any CHF related hospitalization to ease the burden on the Canadian healthcare system.

Fischer A, Borrelli R, IMS Brogan; Barbeau M, Zaour N., Novartis Pharmaceuticals Canada Inc.

Understanding treatment patterns of non-steroidal anti-inflammatory drugs (NSAIDs) and proton pump inhibitors (PPIs) in patients with the signs and symptoms of osteoarthritis (OA) rheumatoid arthritis (RA) and ankylosing spondylitis (AS)

The aim of this study was to understand whether newly diagnosed patients with OA, RA and AS not previously exposed to PPIs, receive a gastro-protectant with their NSAID treatment at initiation or 6 month follow-up period in a primary care setting. We analyzed de-identified patient data from Primary Care Electronic Medical Records (EMR) in Ontario, Canada. Patients ≥18 years, who were new users of NSAIDs, NSAID plus a PPI, a fixed combination of diclofenac and misoprostol, or celecoxib between January 1st 2010 and May 31st 2012. Results suggest that primary care physicians in Ontario, Canada do not prescribe PPIs with NSAIDs at or within 6 months following NSAID initiation. Further studies are required in order to better understand the impact of low PPI concomitant use with NSAIDS, especially in older patients or those who were at a higher risk of GI events.

Alison Dziarmaga, Robert White, Jean-Eric Tarride, AstraZeneca; Kristen Reidel, Neil Corner, IMS Brogan Canada.

Dose pattern analysis for biologics in the treatment of psoriasis in Canada: Information retrieved from administrative claims databases

The objectives of this analysis were to determine the initial dosing and identify dose escalation patterns for biologics in the treatment of psoriasis in Canada. A sample of data from patients covered by the public (Quebec and Ontario) and private drug plans in Canada, who received a biologic between January 2010 and August 2012 for at least 12 months, were retrieved (IMS Health Brogan, IMS Longitudinal Claims Dataset, Jan 2010 - Aug 2013, reported Nov 2013). Across all treatments, dose escalation was recorded in over 60% of patients, most often in the first year of treatment, indicating that patients may require additional doses to maintain response. These findings highlight the need to conduct additional research to determine if there is a need for new treatments which provide high sustained efficacy, with a rapid onset of action.

Valerie Gregory, Martin Barbeau, Novartis Pharmaceuticals Canada Inc.; Neil Liu, Sebastien Gerega, Constance Robertson, IMS Health Canada.

Psoriasis treatment progression and biologic utilization: A Canadian retrospective study

Describe the treatment progression for Canadian psoriasis patients from their first non-biologic systemic (NBS) therapy through biologic (BLx) therapy, generally the last available treatment option. This is a retrospective analysis of psoriasis patients within Canadian private and public medication claims databases from October 2007 to September 2013. High discontinuation of therapy among psoriasis patients treated with current NBS products suggests potential patient dissatisfaction with pre-BLx treatment options. BLx treatment, often the last available option, shows a similar trend, with 69% of patients discontinuing their first BLx within 3 years of initiation. Thus, a need exists for novel psoriasis treatment strategies.

Neil H. Shear, MD FRCPC, Department of Medicine (Dermatology, Clinical Pharmacology), University of Toronto and Sunnybrook Health Sciences Centre; Wendy N. Dobson-Belaire PhD, Ginger Tey MASc, Kristen Reidel MSc, IMS Brogan, a unit of IMS Health; Fei Liu BSc(Pharm) MBA, Celgene Inc.; Zeba M. Khan RPh PhD, Celgene Corporation, USA.

Using anonymized longitudinal patient data to monitor the impact of reimbursement policies on patient compliance

This analysis focuses on British Columbia (BC) where a longitudinal analysis of anonymized patient data (IMS Lifelink LRx) for four patient cohorts, based on different reimbursement payer share profiles, were examined to assess the impact of reimbursement on patient compliance over the course of a year. The analysis focused on the unit consumption pattern of continuing patients on four different diabetes medications (Metformin, Gliclazide, Sitagliptin, and Insulin Glargine), stratified by age (<66, 66+). Patients in provinces where public payer income-based reimbursement triggers are used tend to show uneven utilization. This suggests that adherence and compliance patterns vary over the yearly qualifying cycle. Utilization and compliance is highest at cycle end when public reimbursement is also highest. This can adversely impact patient therapy, even for such an important disease state as diabetes. The measurement of compliance/adherence will also pose a challenge in these situations, as the outcome will be sensitive to the patient's payer profile and the point in the cycle from which compliance is measured. The data suggests that patients who are able to spread reimbursement more evenly across multiple reimbursement channels may have the highest compliance, while those relying predominantly on cash will have the lowest compliance.

Allan F. Gillman PhD, IMS Brogan.

2014

Using electronic medical records as real world evidence to understand the impact of flu vaccinations on patient health

Longitudinal EMR data (IMS Evidence 360, Canada) was used to better understand the impact of annual flu vaccines on patient illness in Ontario. The analysis focused on three diagnosis-driven cohorts: patients with influenza, patients with diabetes and influenza, and patients with diabetes without influenza. Unvaccinated patients with influenza (vs. vaccinated) had 2.8 to 5.7 times the volume of sick notes. Unvaccinated diabetes patients with influenza had 1.1 to 2.3 times the volume of sick notes. There was no significant difference between vaccinated and unvaccinated diabetes patients without influenza. Furthermore, there was no significant difference in sick notes between vaccinated diabetes patients who developed the flu, versus those that did not.

Allan F. Gillman PhD, IMS Brogan.

Reimbursement patterns for Enbrel® (etanercept) as senior patients transition from private to public drug plan insurance

To understand the scope of any gaps in ENBREL reimbursement as senior patients transition from private to public drug plan coverage. The study used the IQVIA LRx database from Ontario and Quebec pharmacies. The delay in ENBREL reimbursement was determined by measuring the gap in coverage during transition from private to public insurer. This study confirmed that a significant number of patients experience a meaningful gap in reimbursement of ENBREL as they transition from private to public plans. Suboptimal clinical outcomes could occur as a result Longer gaps in reimbursement in Quebec compared to Ontario also suggests regional differences may exist in the ease of accessing the public reimbursement system.

Kirsten Garces, Melanie Poulin-Costello, Amgen Canada; Brad Millson, IMS Health Canada Inc.

Impact of the pan-Canadian pricing alliance initiative on time to listing in Canada: An analysis of pharmaceutical coverage

This study assesses PCPA's impact on time to listing for new drugs by looking at provincial listing data in the period surrounding the implementation of PCPA. One of the PCPA's stated objectives is to increase listing consistency across Canada; therefore, additional analysis was conducted to determine whether PCPA has improved listing coverage consistency across the country. The analysis of new drug listing trends in the 2008-2012 period found no indication that time to listing significantly changed because of the implementation of PCPA. In principle, it appears that PCPA does not delay the listing process. In addition, our findings suggest that so far, the PCPA process does not notably impact listing coverage consistency across Canadian provinces.

Robertson C, Zhang Y, Bosnic N, IMS Brogan.

Identifying psoriasis and psoriatic arthritis patients in retrospective databases when a diagnosis code Is not available: A validation study comparing medication / prescriber visit based algorithms to diagnosis codes

To develop and validate a precise diagnosis-independent algorithm based on a combination of medication claims and prescriber visits (MC/PV) to identify psoriasis patients and psoriatic patients with arthritic conditions, a proxy for psoriatic arthritis (PsA). Diagnosis-inference algorithms using MC/PV were developed based on reviews of published treatment guidelines, physician consultation, and literature findings for psoriasis and PsA. Developed an MC/PV-based algorithm to infer psoriasis patients with a high degree of precision, while the precision of the algorithm to infer psoriasis with arthritic conditions in patients requires further investigation. Such methods allow researchers to conduct retrospective studies in databases where diagnosis codes are absent.

Wendy Dobson-Belaire PhD, Richard Borrelli MBA, IMS Broga; Fei Liu BSc(Pharm) MBA, Celgene Inc.; Zeba M. Khan RPh PhD, Celgene Corporation, USA.

Validation of a Canadian primary care electronic medical record database

The objective of this study was to validate data from a primary care EMR system. We analyzed consistency, completeness and comprehensiveness of de-identified patient data from 816 Primary Health Care Professionals from 2009-2011. Overall demographic data were compared to Statistics Canada; the age and sex of patients with type 2 diabetes were compared to those in the Public Health Agency of Canada (PHAC) survey. Completeness was determined by visit for each variable. Validation of this primary care database indicated that it is highly comprehensive and representative of the Canadian population. It may serve as a valuable source for future observational studies such as: Descriptive studies examining patient pathways of care; cohort studies comparing the impact of different treatments on clinical and health-system related patient outcomes; case-control studies to identify risk factors related to outcomes of interest; economic impact studies.

Dziarmaga A, AstraZeneca Canada Inc.; Frise S, AstraZeneca Canada Inc, Dalla Lana School of Public Health, University of Toronto; Tarride JE, AstraZeneca Canada Inc, Department of Clinical Epidemiology & Biostatistics, McMaster University; Corner N., IMS Health Canada.

2013 and earlier

Assessment of a Canadian primary care electronic medical record database for use in observational studies

To evaluate a primary care EMR (Electronic Medical Record) system to determine its feasibility for use in observational studies. De-identified patient data were used to evaluate the database comprehensiveness and variable completeness. Patient demographics (age, sex) were compared to Statistics Canada data in order to assess generalisability of the EMR population. Initial assessment of this EMR indicates that these data may be used for many types of observational research such as: Descriptive studies examining patient pathways of care; cohort studies comparing the impact of different treatments on clinical and health-system related patient outcomes; case-control studies to identify risk factors related to outcomes of interest; economic impact studies; the use of a primary care EMR may be limited for the study of some specialty or in-patient hospital treated diseases. Overrepresentation of exposure is inherent with collection of written versus dispensed medication use.

Frise S, Dziarmaga A, AstraZeneca Canada Inc, Dalla Lana School of Public Health, University of Toronto; Reidel K, IMS Brogan Canada; Tarride JE, Tarride JE, AstraZeneca Canada Inc, Department of Clinical Epidemiology & Biostatistics, McMaster University; Corner N, IMS Health Canada.

Prescribing of opioid analgesics and related mortality before and after the introduction of long-acting oxycodone

The study examined trends in the prescribing of opioid analgesics in the province of Ontario from 1991 to 2007. Using time-series analysis, we determined whether the addition of long-acting oxycodone to the provincial drug formulary in January 2000 was associated with an increase in opioid-related mortality. Results: From 1991 to 2007, annual prescriptions for opioids increased from 458 to 591 per 1000 individuals. Opioid related deaths doubled, from 13.7 per million in 1991 to 27.2 per million in 2004. Prescriptions of oxycodone increased by 850% between 1991 and 2007. The addition of long-acting oxycodone to the drug formulary was associated with a 5- fold increase in oxycodone-related mortality ($p < 0.01$) and a 41% increase in overall opioid-related mortality ($p = 0.02$). Interpretation: Opioid-related deaths in Ontario have increased markedly since 1991. A significant portion of the increase was associated with the addition of long-acting oxycodone to the provincial drug formulary. Most of the deaths were deemed unintentional. The frequency of visits to a physician and prescriptions for opioids in the month before death suggests a missed opportunity for prevention.

Irfan A. Dhalla, MD MSc, Muhammad M. Mamdani, PharmD MPH, Marco L.A. Sivilotti, MD MSc, Alex Kopp, BA, Omar Qureshi, MD, and David N. Juurlink, MD PhD. Published: CMAJ. 2009 Dec 8; 181(12): 891–896.

Anti-depressant use in association with interferon and glatiramer acetate treatment in multiple sclerosis

Randomized controlled trials incorporating validated depression scales have failed to identify an association between interferon beta treatment and depression in MS. This is surprising since interferons used in other clinical contexts are considered capable of causing depression. The negative results in MS could be due inadequate power in the published trials. In this study, longitudinal anonymized prescription data from IQVIA was analyzed. The database contains information about prescriptions filled at outpatient pharmacies in Canada, linked on an anonymized basis at the individual level over time periods as long as 36 months. Antidepressant prescriptions were used as a proxy indicator for depressive disorders. The frequency of antidepressant use was compared in cohorts treated with glatiramer acetate and interferon beta. This analysis uncovered no evidence that antidepressant treatment occurs more often in people treated with interferon beta than in those treated with glatiramer acetate. These results help to confirm that depression is not associated with interferon beta treatment in MS.

SB Patten, JVA Williams and LM Metz, Mult Sclerosis 2008; 14; 406 originally published online Nov 6, 2007

Study of dyslipidemia prescribing habits of family physicians to reveal barriers to the adoption of innovative therapies

Dr. Lyne Lalonde, researcher and professor in the Faculty of Pharmacy, University of Montreal and head of Project TEAM, an initiative primarily funded by Canadian Institutes of Health Research (CIHR), wanted to obtain empirical data on the existence and magnitude of the participation effect on the dyslipidemia prescribing practices of family physicians. The study was entitled “Randomized controlled trial to evaluate an ambulatory integrated primary care management program for patients with dyslipidemia”. It was designed to evaluate a new model of care in which physicians and pharmacists are co-responsible for managing statin therapy. To accurately measure the participation effect in study, the researchers needed to compare pre-, during- and post-trial data on the cholesterol prescribing practices of the participating physicians as well as a control group of family physicians not involved in the study. The researchers turned to IMS (IQVIA) to help them obtain this data. IMS database allowed documentation of all prescriptions regardless of the insurance program.

Dr. Lyne Lalonde, University of Montreal, Brian Carter, IMS Health Canada.

Reasons for antidepressant prescriptions in Canada

The study purpose was to describe reasons reported by physicians making recommendations for treatment with antidepressant medications. Data collected by IMS Health Canada (IQVIA) in a database called the Canadian Disease and Therapeutic Index (CDTI) were used in this analysis. CDTI data are collected from a representative sample of office-based physicians who complete diaries in their practices during selected sampling periods. A drug recommendation is recorded each time a treatment is recommended. The data are weighted to produce national estimates of the frequency of such recommendations. Results: The frequency of recommendations for antidepressant treatment increased between 2000 and 2004. However, there was a slight decrease in 2005. Two types of antidepressant medications, tricyclic antidepressants (TCAs) and trazodone showed distinct patterns of use. TCAs were more commonly used for non-psychiatric indications than for psychiatric indications, especially for sleep- and pain-related reasons. Trazodone was frequently recommended for sleep problems. The proportion of recommendations for depressive disorders for antidepressants as a group remained stable over the 5-year study period. Conclusions: About one-third of antidepressant recommendations are for reasons other than depression. It can no longer be assumed that the frequency of antidepressant use is a measure of the frequency of pharmacological depression treatment. However, prescription data may be useful for tracking trends.

Brian Carter, IMS Health Canada. Published: Pharmacoepidemiology Drug Safety. 2007 Jul;16(7):746-52. doi: 10.1002/pds.1385.

Educational approach to community antibiotic utilization

A community education program called “Do Bugs Need Drugs?” was instituted by the University of Alberta, the Capital Health Region, Dynacare Kasper Medical Laboratories, and others to address inappropriate antibiotic use for respiratory tract infections—causing antimicrobial resistance in children. Using anonymized prescription information, the organizations could demonstrate that an educational campaign directed at physicians and pharmacists, and then to school children and the public were effective in decreasing the overall number of antibiotic prescriptions for infections not requiring drug therapy.

Brian Carter, IMS Health Canada; Dr. Edith Blondel-Hill.

Differences in how children in British Columbia are treated for attention deficit hyperactivity disorder

The many questions and anecdotal evidence that swirled around the treatment of children diagnosed with ADHD prompted Dr. Anton Miller, Clinical Associate Professor at UBC's Department of Pediatrics, to study the patterns of drug therapy in British Columbia, a province where press coverage of the subject went almost unabated for an entire year. Dr. Miller wanted to better understand how medications were being used to treat children diagnosed with ADHD in British Columbia. He wanted to compare this information to the treatment of children diagnosed with ADHD in other Canadian provinces. Leveraging its database of anonymized prescription information, IQVIA provided data on prescribing trends for methylphenidate in British Columbia compared to the other provinces and to other countries, as well as prescription trends for other ADHD therapies, such as amphetamines. A pattern repeated across provinces was the significant disparity by socio-demographic alignment, with higher use found in lower-income regions. Also in keeping with a national trend, British Columbia prescriptions dropped off significantly during the summer months, indicating children were given a "drug holiday" when they were not in school. Dr. Miller used the information to recommend educational programs for physicians and parents in regions where per capita prescriptions for the age groups under study were disproportionately higher.

Effect of putative neuroprotective agents at slowing disease progression in Parkinson's Disease

Dr. Wayne Martin, Director, Department of Movements Disorders Clinic, Glenrose Rehabilitation Hospital, Edmonton, Canada – was interested in recruiting patients in the early stages of Parkinson's Disease for one of two clinical trials - the PSG trial in evaluating the investigational drug CEP-1347, and the NIH trial in evaluating minocycline and creatine. He requested assistance from IQVIA in identifying top prescribers of anti-Parkinson's drugs to assist in his recruitment process, using IQVIA's anonymized prescription information database. IQVIA provided Dr. Martin with the names of the top prescribers in northern Alberta of the medications most used drug to treat Parkinson's Disease. No information was released regarding the number of prescriptions that were prescribed. Accessing this information enabled the researchers to efficiently contact key physicians with information about the clinical trials and to recruit patients to participate who may not otherwise be referred to the Movement Disorders Clinic in the early stages of the disease process. Without the IQVIA data, the researchers would have to contact approximately 5,000 physicians in Alberta to determine their level of interest in this therapeutic area.

Dr. Wayne Martin, Glenrose Rehabilitation Hospital; Brian Carter, IMS Health Canada.

Determining differences in prescribing patterns of ADHD medications by province

Over the years Bernard Richard, Ombudsman and Child and Youth Advocate of the province of New Brunswick, had received many complaints from parents on the rising level of prescriptions for central nervous system (CNS) stimulants such as methylphenidate, dextroamphetamine and mixed salts amphetamine to treat Attention Deficit Hyperactivity Disorder (ADHD) in children. To begin to understand how stimulant drugs were being prescribed, Mr. Richard needed comprehensive information in the following three areas: Prescription data on CNS stimulants for each province. A mapping by regional health authorities in New Brunswick. Information on the treatment of ADHD across the country. In 2005, he turned to IQVIA to provide provincial and regional analyses of prescription patterns, leveraging anonymized prescription information, as well as benchmarking with other provinces.

Case study on use of oxycodone in Canada: Protecting the health and wellbeing of Canadians through new and innovative drug safety initiatives

The value of oxycodone as a significant contributor to pharmaco-therapy for the management of moderate to severe pain has been overshadowed by concerns about the drug's safety. In addition to its analgesic properties, the drug has the potential for physical and psychological dependence and is a known drug of abuse. The drug, either in combination or as a single entity product, has an important role to play in drug therapy if used in a manner that is both safe and effective. In this study, IQVIA identified provinces where prescribing practices varied considerably from average practice. Leveraging IQVIA's anonymized prescription information database, the research was able to determine that physicians and pharmacists in different provinces have different prescribing and dispensing patterns and tend to favor generally one form of oxycodone over another, or one strength of a drug over another. It was also observed that not all physicians even prescribe oxycodone, and of the ones that do, only a very small percentage are responsible for most prescriptions.

Brian Carter, IMS Health Canada.

Use of oxycodone in Newfoundland and Labrador

In Canada, the Government of Newfoundland and Labrador, in December 2003, established a Task Force to assess the extent of the abuse of OxyContin® in the province and to develop a comprehensive plan to deal with the issue. This product has the highest potential for abuse because of its controlled release method allowing for a longer duration of action; it contains larger doses of the active ingredients; and it is a single-entity product. The Government of Newfoundland and Labrador, in December 2003, established a Task Force to assess the extent of the abuse of OxyContin® in the province and to develop a comprehensive plan to deal with the issue. IQVIA leveraged its anonymized prescription information database to provide utilization data to support the work of this Task Force.

How Quebec specialists in infectious diseases compare with their provincial and Canadian colleagues in the prescribing of medications

Dr. Monique Goyette was the head of the AMMIQ. As part of the overall concern around the appropriate prescribing of antibiotics, Dr. Goyette wanted to engage her fellow specialists, by showing them statistics on the prescribing of these medications in Quebec, and the rest of Canada. Specifically, she wanted them to be able to compare their own prescribing habits with habits elsewhere. This would be a first step in a self-evaluation-realization analysis. She approached IQVIA in the spring of 2003 to assist her in preparation of an article, leveraging anonymized prescription information, that would be used for educational purposes with her colleagues. The data points were provided to all members, as part of the AMMIQ monthly Journal. In each case, the analysis showed significant differences and/or variances between the prescribing of anti-infectives by the study group when compared to their cohorts, which were defined as either Specialists or General Practitioners.

Dr. Monique Goyette

Research shows that promotion outweighs publication in facilitating the adoption of new clinical evidence

The HOPE study established "level 2 evidence" for the effectiveness of ramipril, an angiotensin-converting enzyme (ACE) inhibitor. To compare the effects of publication versus promotion on prescriber behavior, the research team took advantage of differences in promotional activity in Canada and the United States for the Heart Outcomes Prevention and Evaluation (HOPE) study and the Randomized Aldactone Evaluation Study (RALES) to determine if publication of new evidence changes practice and the extent to which promotion influences adoption of new evidence. The researchers used IQVIA's longitudinal prescribing database, as well as IQVIA promotional data, collected from 1998 to 2001, to examine changes in prescribing patterns for ramipril and other ACE inhibitors before and after publication of the HOPE study. Researchers also obtained estimates for promotional expenditures.

New England Journal of Medicine in January 2000. See Majumdar SR, McAlister FA, Soumerai SB. Synergy Between Publication and Promotion: Comparing Adoption of New Evidence in Canada and the United States. American Journal of Medicine, 2003; 115: 467–72.

Temporal trends in antihypertensive drug prescriptions in Canada before and after introduction of the Canadian Hypertension Education Program

Poor control of hypertension is a world-wide health issue. In 1999, the Canadian Hypertension Education Program (CHEP) was launched to annually develop and implement evidence-based hypertension guidelines to improve hypertension control rates. This study was designed to examine temporal trends in antihypertensive drug prescribing and to explore whether drug prescriptions changed after initiation of the new CHEP guideline process. The study used longitudinal Canadian dispensing data (from the IMS CompuScript database (now IQVIA) to examine antihypertensive prescriptions in the 3 years prior to and the 3 years following introduction of the new CHEP process. Results showed that prescriptions for all antihypertensive drugs increased substantially in Canada between 1996 and 2001; the rate of increase was significantly greater after 1999 for all four drugs recommended as first-line therapy in the annual CHEP guidelines. While this preliminary data was encouraging, this study demonstrated that a national survey of blood pressure control was needed to fully evaluate the impact of the new Canadian guideline process.

Norman R.C. Campbell, Finlay A. McAlister, Rollin Brant, Mitch Levine, Denis Drouin, Ross Feldman, Robert Herman and Kelly Zarnke for the Canadian Hypertension Education Process and Evaluation Committee

Should the Alberta Triplicate Prescription program be expanded to include tracking of prescriptions for Darvon (propoxyphene) and what are the resource requirements?

The College of Physicians and Surgeons of Alberta contacted IMS in mid-2003 to obtain prescription utilization data for the narcotic painkiller Darvon (generic name propoxyphene). The College was interested in determining if this drug should be added to the list of drugs tracked through the Triplicate Prescription Program. Over the past several years Alberta has become the highest user of this drug, accounting for over half of all Canadian prescriptions in 2002. The study used the IMS CompuScript prescription data. The study concluded that should Darvon (propoxyphene) be added to the list, it will impact a large number of Alberta citizens that use the drug (approximately 75,000 prescriptions annually), as well as prescribers and pharmacists who must adhere to strict program requirements.

Published in Journal of Hypertension 2003, Vol 21 No 8.

Prescribing guidelines for attention deficit hyperactivity disorder (Quebec)

IQVIA had established a partnership with the Collège des médecins du Québec aimed at developing and implementing a prescribing guidelines program for attention deficit hyperactivity disorder (ADHD). The goal was to understand the prescribing patterns of drugs used to treat ADHD, including Ritalin, to establish guidelines and to measure the results of the program. IQVIA provided the baseline and benchmarking data that were included in the report's conclusions and recommendations. IQVIA's anonymized prescription data showed that 12% of Quebec physicians wrote more than 75% of the prescriptions for methylphenidate. The Collège des médecins du Québec decided to focus their educational efforts on the physicians who most-often prescribed the drug versus those who only occasionnally prescribed this medication. This reasearch demonstrated the importance of being able to target information campaigns to the relevant physicians in a timely manner.

Optimal prescribing of benzodiazepines

IQVIA (then known as IMS Health) undertook a continuing medical education study with the College des médecins du Québec to promote the optimal prescription of benzodiazepines, including valium, to seniors. Using its anonymized prescription information database, IQVIA provided information on their use before, during and after the program. The physicians participating in this study received their confidential prescribing profiles, including comparative data, for self-assessment. IQVIA provided analytical support to help researchers assess the effectiveness of this continuing education program to promote optimal prescribing.

Impact of policy changes on the broader Nova Scotia population and areas where education and interventions need to be focused

In 2000, the Nova Scotia Pharmacare Programs implemented three policies to encourage the appropriate prescribing and utilization of respiratory medications within the Pharmacare Programs. An initiative was launched encouraging Pharmacare beneficiaries using inhaled respiratory medications through wet nebulization to switch to a favored dry delivery system. Because the Drug Evaluation Alliance of Nova Scotia (DEANS) does not have access to utilization data for Nova Scotians not covered by the Pharmacare Programs, they asked IQVIA to provide the necessary comparative data. The comparison of data from IQVIA to those of the Population Health Research Unit (PHRU, the government database) was used to identify the variances between the population represented by the government-held data and that represented by the broader IQVIA data universe. The comparison revealed that the interventions had a similar effect on patients not covered by Pharmacare, as trends in the use of respiratory medications extended to the population under 65 years of age.

Commitment to protecting the privacy and confidentiality of health information

IQVIA is a leader in maintaining the integrity of anonymised health information in the private sector. We work to ensure health information continues to be available to the health community while safeguarding the privacy and anonymity of individuals.

Data privacy is a priority at IQVIA. The company uses a wide variety of privacy-enhancing technologies and safeguards to protect individual privacy while generating and analyzing information on a scale that supports healthcare stakeholders identify disease patterns and correlate with the precise treatment path and therapy needed for better outcomes. IQVIA does not collect any patient identifiable information or any information that could be used to identify a patient.

In addition to complying with IQVIA's many policies and procedures relating to information governance, privacy, and data security, including the IQVIA Privacy Policy, IQVIA Canada takes an active approach in elaborating and implementing additional policies and procedures needed in the Canadian context. Chief among these are IQVIA Canada's Code for the Management of Protected Information Respecting Health Professionals (Excluding Quebec) and its Code for the Management of Personal Information Respecting Health Professionals in the Province of Quebec, both of which are developed to reflect the principles of the Canadian Standards Association's Model Code for the Protection of Personal Information (CAN/CSA-Q830-96). Every member of IQVIA Canada's work force, from its senior executives on down, shares in the responsibility of ensuring that our activities meet or exceed industry best practices in the area of privacy protection. In addition, our Canadian Information Governance Counsel, comprised of stakeholders from across the company, provides targeted oversight on the implementation, optimization, and enforcement of our privacy-related policies and procedures.

Amongst other processes, our privacy-related practices include:

- Ensuring complete patient privacy by never collecting patient-identifiable information for the production of our data offerings.
- Requiring all staff to sign confidentiality undertakings every year, and to complete regular privacy and information security trainings, as a condition of employment.
- Requiring all clients to follow strict confidentiality requirements tailored to each of our data products, including contractual confidentiality provisions, codes of conduct, data policies, and/or confidentiality user guides.
- Maintaining an open and transparent approach with regulators and other privacy stakeholders, including annual reporting on certain key datasets and related information handling practices.

ABOUT IQVIA

IQVIA (NYSE:IQV) is a leading global provider of advanced analytics, technology solutions, and clinical research services to the life sciences industry. IQVIA creates intelligent connections across all aspects of healthcare through its analytics, transformative technology, big data resources and extensive domain expertise. IQVIA Connected Intelligence™ delivers powerful insights with speed and agility — enabling customers to accelerate the clinical development and commercialization of innovative medical treatments that improve healthcare outcomes for patients. With approximately 87,000 employees, IQVIA conducts operations in more than 100 countries.

IQVIA is a global leader in protecting individual patient privacy. The company uses a wide variety of privacy-enhancing technologies and safeguards to protect individual privacy while generating and analyzing information on a scale that helps healthcare stakeholders identify disease patterns and correlate with the precise treatment path and therapy needed for better outcomes. IQVIA's insights and execution capabilities help biotech, medical device and pharmaceutical companies, medical researchers, government agencies, payers and other healthcare stakeholders tap into a deeper understanding of diseases, human behaviors and scientific advances, in an effort to advance their path toward cures.

To learn more, visit iqvia.com/canada

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