

IMPACT Newsletter

7th Edition September 2016

Introduction

The goal of the IMPACT newsletter is to provide you with exciting news, updates and study milestones. Without your referrals and continued support, we would not have been able to reach the high number of patients who have already received pharmacogenomic testing through IMPACT. Thank you for all of your support!



Meet the IMPACT team! Visit us at www.im-pact.ca.

IMPACT Study Milestones

- The IMPACT study was initiated in June 2011 after receiving \$19.5 million from the Ontario Ministry of Research and Innovation, the CAMH Campbell Family Mental Health Research Institute and Larry & Judy Tanenbaum.
- In May 2012, the first IMPACT patient was consented.
- In January 2013, for the first time in Canada, patients were able to receive genetic testing at their family physician's office; this was made possible through the IMPACT study.
- In November 2013, CAMH and Assurex Health signed a partnership agreement to bring the benefits of a personalized approach to psychiatric treatment to more Canadians.
- Beginning in November 2014, patients enrolled in the IMPACT study were tested using the Assurex Health proprietary technology, GeneSight Psychotropic.
- Since May 2012, 2,156 clinicians have completed the clinic registration process.

Important Study Reminders

Participants are asked to provide the following information at each stage of the study:

Baseline (Upon Consent)

- Symptoms
- Medication history
- Side effects

Week 4

- Symptoms
- Current medications
- Side effects

Week 8

- Symptoms
- Current medications
- Side effects

Symptomology is gathered through scales such as BDI, PANSS, YMRS and GAD-7 depending on the patient's diagnosis. Please discuss with your patients the importance of completing these scales at each time point of the study.

Referral Process

Referring a patient to the IMPACT study is easy!

To refer a patient to the study, please download and complete the appropriate referral form below. The completed form is sent to the IMPACT team via email impact@camh.ca or fax 416.979.4666:

- [IMPACT Adult Referral Form \(16+\)](#)
- [IMPACT Adolescent Referral Form \(7-15\)](#)

A Research Analyst from CAMH will then contact your patient to walk him/her through the informed consent process in order to enroll him/her in the study. If you have any questions regarding the referral process please contact us at 416.535.8501 ext. 30240.

Patients who are over 16 years of age and not diagnosed with schizophrenia (as PANSS must be conducted in person) can consent online. The patient will then be prompted to choose between providing the buccal swabs in person at CAMH or having a sample collection package sent to their address (via FedEx) at no charge.

Access to genetic reports

Once the buccal swabs are received by the laboratory and processed, the GeneSight reports can either be faxed (in black and white) or accessed online (in colour with print option). An email address for the clinician must be provided on the referral for online access.

GeneSight reports are available within 36 hours of buccal swab receipt!

Testimonials

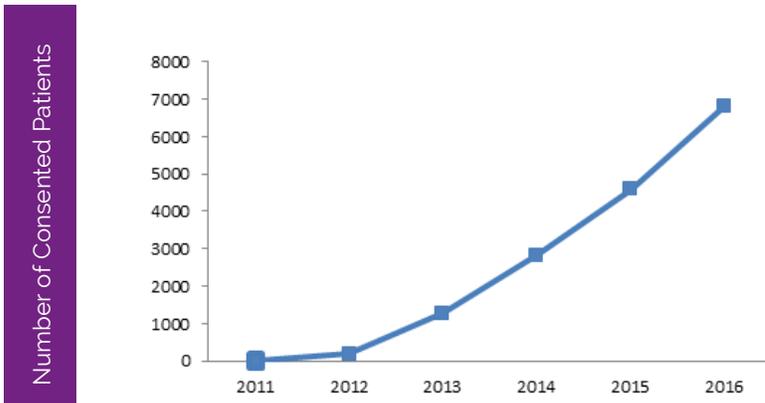
Please let us know if you would be interested in sharing your experiences with pharmacogenomic testing. We are always interested in feedback — reach us by email at impact@camh.ca.

IMPACT Newsletter

7th Edition September 2016

IMPACT Study Status

As of September 2016, the IMPACT Study has enrolled 6,823 patients for pharmacogenomics testing in total, averaging over 197 patients enrolled per month in 2015-2016.



IMPACT Study Year

FIGURE 1 Number of patients consented to participate in the IMPACT Study.

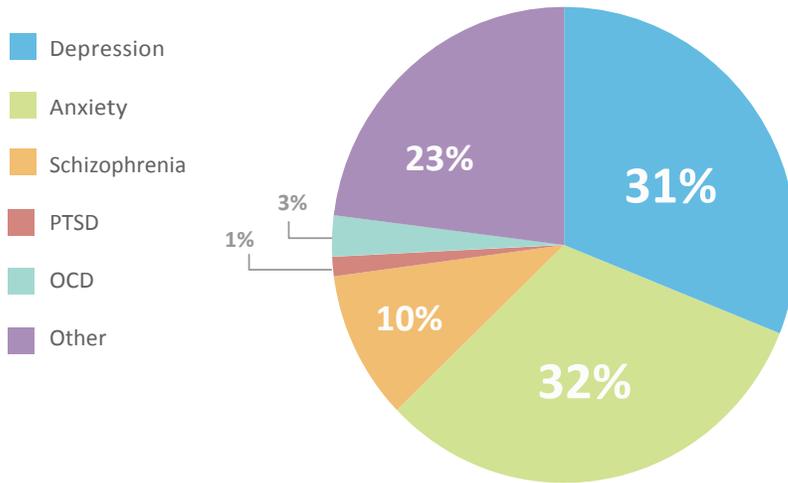


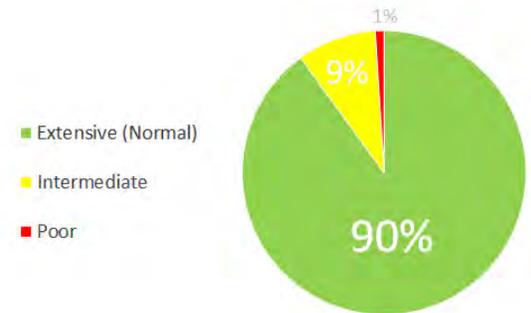
FIGURE 2 Percentage of IMPACT study participants with a primary diagnosis of depression, anxiety, schizophrenia, PTSD, OCD or other. Patients may have a secondary diagnosis

Gene Spotlight

Drug metabolizer CYP3A4

CYP3A4, is located on chromosome 7, and encodes a liver enzyme involved in the metabolism of medications. CYP3A4 is involved in the metabolism of 76% of all medications on the GeneSight test. The human CYP3A subfamily, CYP3A4, CYP3A5, CYP3A7 and CYP3A43, facilitates elimination of drugs, other xenobiotic compounds, and endogenous molecules. CYP3A4 is the most abundant CYP3A enzyme in the human small intestine and liver, where its activity far exceeds that of CYP3A5. CYP3A4 metabolizes over half of all human medications and, like CYP2D6, an even higher percentage of psychiatric medications. Genetic variations in CYP3A4, including SNPs, may contribute to inter-individual variability in drug metabolism. Seventeen studies assessed the association between gene variants of CYP3A4 and PK, while nine assessed gene associations and drug response. The CYP3A4 gene was included in this review but was not limited by the search and exclusion criteria since few studies have been published on this gene until recently. Drug metabolite, plasma concentrations, mean dose, maximal velocity, or half-life were assessed in the 17 PK studies. 12 of these studies (71%) reported a significant association between PK and CYP3A4 genotypes. 7 of the studies assessed the more commonly investigated polymorphisms *1B or *22, and 4 found a significant association with at least one of these PK outcomes. For the other commonly implicated *1G allele, the most frequently administered medication was fentanyl, which is a selective CYP3A4 substrate. All 4 studies showed a significant association between a *1G genotype and higher plasma fentanyl concentrations and lower overall doses of fentanyl to sustain post-operative analgesia, compared to those with the wild-type *1 allele, indicating that the CYP3A4 *1G polymorphism may predict individual requirements for fentanyl. (Altar et al., 2013).

CYP3A4 Phenotype Frequency*



*Phenotype frequency is based on internal Assurex Health data of over 100,000 tested patients.

Webinars

Assurex Health offers educational webinars that provide treating information about GeneSight technology and pharmacogenomics in general.

If you are interested in participating, register by visiting: <http://genesight.com/educational-webinars>.

IMPACT Newsletter

7th Edition September 2016

GeneSight Psychotropic

GeneSight Psychotropic is a clinically validated, laboratory developed test that analyzes how eight genes may affect a patient's metabolism and response to 33 Health Canada approved antidepressants and antipsychotics. GeneSight testing includes genotyping of six pharmacokinetic genes from the Cytochrome P450 family and two pharmacodynamic genes related specifically to the serotonin system. GeneSight differs from other pharmacogenomic testing in that it is combinatorial and integrates information from Health Canada approved labels, published literature and clinical pharmacology with the patient's genetics to predict his/her response and tolerability to a medication. For more information, visit: www.genesight.com.

In The News

Assurex Health was Acquired by Myriad Health

On August 3, 2016 Assurex Health has become a wholly-owned subsidiary of Myriad Genetics, Inc. (NASDAQ: MYGN), a leader in molecular diagnostics and personalized medicine.

"We are excited to be joining the global leader and pioneer in personalized medicine," said Virginia C. (Gina) Drosos, president and CEO of Assurex Health, who will continue to serve as president of Assurex Health. "Myriad has the reimbursement, regulatory and commercial expertise to help take our business to the next level and ensure that even more patients can benefit from better outcomes through our GeneSight tests."

Combining Assurex Health with Myriad Genetics offers the companies a number of compelling benefits, including continuing work to expand acceptance of GeneSight by commercial payers. The acquisition also integrates Myriad's comprehensive primary care sales team with Assurex Health's industry-leading psychiatric sales force. Headquarters of Assurex Health remains in Mason, Ohio, building on the city's innovative public-private partnership that allowed the company to flourish in the region. Access to top talent, venture funding, strong science partnerships with Cincinnati Children's and leading Midwest universities, and a beneficial cost structure—including the affordable lifestyle and economic incentives that Mason and Ohio offer—are fundamental to the company's commitment to the region.

For More Information

WEBSITE www.im-pact.ca
PHONE 416.535.8501 ext. 30240 | 1.800.928.3316
FAX 416.979.4666
EMAIL impact@camh.ca