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 Psychotropics.
- Since May 2012, 1,489 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 and PANSS depending on the patient’s diagnosis. Please discuss with your patients the importance of completing these scales at each time point of the study.

Clinic Registration

In order to receive your patients’ GeneSight Psychotropic reports, you must register your clinic by filling out the IMPACT Clinic Registration Form. This form can be accessed by visiting http://impact.camh.ca/en/docs/IMPACT-AssureRx-RegistrationForms.

Please complete and return this form via email to registrations@assurexhealth.com or fax to 1.888.894.4344.

The second step in the clinic registration process is gaining access to reports. GeneSight reports can be faxed, once your office verifies the fax number, or viewed online via the GeneSight portal. Besides providing your email address for online access, you may also designate access to your staff by providing their email addresses.

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 and return it 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.

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

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IMPACT Study Status

As of November 2015, the IMPACT Study has enrolled 4,583 patients for pharmacogenomic testing in total, averaging over 145 patients enrolled per month in 2015.

Gene Spotlight

Drug metabolizer CYP2C9

CYP2C9, located on chromosome 10, encodes a liver enzyme involved in the metabolism of medications. CYP2C9 is involved in the metabolism of 26% of all medications on the GeneSight test. CYP2C9 is involved in the secondary pathway of metabolism of some psychotropic medications, including amitriptyline, fluoxetine and sertraline. Seven studies assessed the association between CYP2C9 gene variants and PK outcomes, yet four of these were excluded because they studied haloperidol and risperidone, neither of which are CYP2C9 substrates (Altar et al., 2013).

The remaining three studies primarily evaluated patients with major depressive disorder. CYP2C9 gene variants have been evaluated for their effect on dose-corrected or dose- and weight-corrected plasma or serum concentration of the substrate and its metabolite, or the dose required to reach therapeutic efficacy. CYP2C9 *1 has normal enzymatic activity, while CYP2C9 *2 and *3 have decreased enzymatic activity. The three studies investigated CYP2C9 substrate antidepressants and the CYP2C9 *1, *2, and *3 polymorphisms, and found a significant association with PK outcomes. In one study, decreased fluoxetine metabolism was observed in Intermediate patients (CYP2C9 *1/*2 or CYP2C9 *1/*3) compared to those with the Extensive metabolism, full activity genotype (CYP2C9 *1/*1). In another study, dose-normalized r-fluoxetine concentrations were lower in Extensive metabolism patients who were homozygous for CYP2C9 *1 than in patients with reduced function *1/*2, *2/*2 or *1/*3 genotypes.

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.
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 antidepressant and antipsychotic medications.

GeneSight testing includes genotyping of six pharmacokinetic genes from the Cytochrome P450 family and two pharmacodynamics genes related specifically to the serotonin system. GeneSight differs from other pharmacogenomic testing in that it is combinatorial. GeneSight takes into consideration how a combination of genetic variations can affect a patient’s ability to respond to a medication.

For more information, visit: www.genesight.com.

In The News

Assurex Health at MaRS Mornings

On October 15th, 2015, Gina Drosos, CEO of Assurex Health, spoke at a MaRS monthly breakfast series in MaRS Centre in Toronto about what it takes to radically turn an industry upside-down and come out on top.

MaRS is an organization that works with an extensive network of partners to help entrepreneurs launch and grow the innovative companies in Canada.

Assurex Health and CAMH have launched joint venture to advance personalized medicine in Canada. They have partnered together to advance the widespread use of personalized medicine in psychiatry, and improve health care for Canadians who need medications for mental health problems.

The personalized approach helps to match the right medication at the right dose for each patient, based on their genetic makeup. Using Assurex Health’s GeneSight panel, physicians can easily see which psychiatric medications are likely to be effective for each patient and which ones are not, often avoiding treatment failure and side effects.

This approach is a game-changer from the current trial-and-error approach to prescribing, which results in many patients having to try different psychiatric medications, each with potential side-effects, before the best medication for them can be determined.
In The News

CAMH presents research on the physicians' opinions following pharmacogenetic testing for psychotropic medication

The CAMH research team is pleased to announce a recent publication (Walden et al., 2015) on the physicians' opinions following pharmacogenetic testing for psychotropic medication. We reported that pharmacogenetics seeks to improve patient drug response and decrease side effects by personalizing prescriptions using genetic information.

Since 2012, by one estimate, the number of patients who have had pharmacogenetics testing has doubled and this number is expected to double again by the end of 2015. Given the increasing evidence for genetic influences on treatment response, the CAMH researchers deemed it important to study physicians' opinions of pharmacogenetics testing. Surveys were completed by 168 Canadian physicians who had ordered at least one pharmacogenetics test (in particular for CYP2D6 or CYP2C19) for the prescription of psychiatric medication. Our results indicated that 80% of respondents believe genetic testing would become common standard in psychiatric drug treatment and 76% of respondents reported satisfactory or higher than satisfactory understanding of the pharmacogenetics report provided. The results demonstrated a positive opinion of physicians on pharmacogenetics and indicated great potential for future clinical application (See the diagram below).

We concluded that pharmacogenetics is a rapidly growing field and physicians, along with other members of the health care team appear to be enthusiastic regarding its integration into practice.

Physicians in their study demonstrated a high level of understanding of the genetic information and found it very useful when prescribing psychiatric medication.

With the accumulating literature to support the potential of pharmacogenetics, the stage is being set for a steady increase in the adoption of pharmacogenetics testing.

This diagram represents the results of the following question: “Do you believe that genetic testing will become common standard in psychiatric drug treatment?”.