



Mental Illness In The Workplace

Pharmacogenetics:
A missing piece of the puzzle

Executive Summary

Pharmacogenetics is an effective tool for managing mental illness in an organization. It is a missing puzzle piece from almost all workplace health and safety strategies and can produce an excellent return on investment for your organization.

Personalized Prescribing Inc. proposes a one-year pilot project with your organization to determine the ROI of a pharmacogenetics plan. This will not only introduce pharmacogenetics to your workplace, but could also result in a determination of the overall mental health condition of the organization.

Mental Illness in the Workplace

The community of human resource professionals are in general agreement that it is in the best interest of employers to develop and implement an effective workplace mental health strategy. Indeed, several large employers in Canada have implemented well-documented strategies mostly based on the Mental Health Commission of Canada's "National Standard for Psychological Health and Safety in the Workplace – Prevention, Promotion and Implementation".

Implementing and maintaining a safe and healthy work environment can help to reduce the risk of chronic job stress and anxiety. However, despite such strategies, the continued struggle with mental health issues remains a major economic and social issue for businesses and their working populations.

As a part of the above strategy, employers do support their employees to deal with their mental health challenges; such as Employee Assistance Programs (EAPs) and peer support programs. Unfortunately, they often miss the opportunity to address the biological and clinical aspects of a treatment plan.

Mental illness is often the cause of a chemical imbalance within the brain or the body, which typically responds best to treatment with medication or a combination of medication and psychotherapy. Unfortunately, psychiatric medications do not always work as intended.¹ In fact, roughly half of psychiatric medications do not work on the first try.²

There are two components that drive psychiatric medication response: efficacy and toxicity. Some drugs might be effective in treating the symptoms, but they could also be causing adverse drug reactions such as nausea, weight gain, drowsiness, lethargy, sexual dysfunction or even suicidal tendencies.

On the other hand, some drugs are just not effective in a subset of the population, which is an issue that can do just as much damage as toxicity. An employee could be taking a drug that is not effective for them, expecting the drug to be helping. An employee on an ineffective medication would have little or no coverage of symptoms, resulting in the individual continuing to come to work with symptoms of their mental illness, further resulting in reduced productivity or disruption to their environment.

The trial-and-error cycle of finding the appropriate medication through guess-and-check ensues. Employees may suffer from presenteeism, absenteeism and even may apply for some form of disability. While some are fortunate in eventually arriving at the right medication and dose through trial-and-error, resulting in an improvement in their condition, and a quicker return to their employment, unfortunately, many employees in this scenario continue to some form of disability, struggling with an ineffective medication regimen.

A potentially serious byproduct of the trial-and-error process, is the patient's loss of hope or confidence in taking their medication. This reduction in adherence to medication results in an additional complication in the pursuit of a sustainable treatment.

The challenge is to hasten the determination of the correct medication and dose that would be both effective and cause little or no adverse reaction. Many factors contribute to drug response, but the main factor is pharmacogenetics.

We strongly believe employers should embrace pharmacogenetics as an integral part of mental health treatment plans.

In this paper, we make the business case for “P3”; a pharmacogenetic testing plan that helps your employees avoid suffering from lengthy trial and error attempts to determine the most appropriate medication based on their genetics.

Mental illness in the workplace is very costly and is one of the leading causes of disability in the workplace, representing 30% of disability claims and approximately 70% of total costs.³

Early studies of Pharmacogenetics testing have been shown to help mentally ill employees by pinpointing their prescription drug compatibility and by increasing adherence and confidence to medications that they are currently taking.

- A 2012 Mayo Clinic research study reported that giving a pharmacogenetic test to patients with depression could significantly reduce depressive symptoms⁴
- Nature Publishing Group published a study in 2013 and determined that a pharmacogenetic test could predict which patients with obsessive-compulsive disorder, would have more failed medication trials, with greater rates of adverse drug reactions.⁵
- A cost analysis study determined that pharmacogenetic testing in patients with schizophrenia could drastically reduce treatment costs, on average, by \$46,532 annually⁶
- Another study projected that a six-gene pharmacogenetics test could save, on average, \$5,188 per year in healthcare costs for individual psychiatric patients who were feeling suboptimal with their current medications.²

- A 2013 study published in Translational Psychiatry determined that a pharmacogenetic test for employees on at least one of 26 commonly used antidepressant and antipsychotic medications could reduce total health care visits by 69% and disability claims by greater than four-fold, which would save Canadian employers over \$14 billion a year in total savings.

The above does not account for the savings realized through presentism, absenteeism and reduced productivity. We project that the total return on investment (ROI) from implementing a pharmacogenetic plan (P3) ranges from 8-fold to 20-fold depending upon the circumstances of the employer.

Return on Investment:

Calculating a return on investment for pharmacogenetics testing for an employer is of great importance and requires some rigor. ROI depends upon the unique circumstances of the employer to validate results.

Personalized Prescribing Inc. proposes a one-year pilot project with your organization to determine the ROI of a pharmacogenetics plan. This will not only introduce pharmacogenetics to your workplace, but could also result in a determination of the overall mental health condition of the organization.

The Pilot Program:

1. The employer implements P3 as a benefit within their benefit plan for a one-year period. The cost for the employer will be \$2 per employee per month. The plan will also cover dependents of employees and other non-psychiatric drugs, such as cardiovascular and oncology medications.
2. P3, in conjunction with the employer, and/or their benefits consultant, will develop the exact measurement criteria for the ROI calculation.
3. P3, in conjunction with the employer, and/or their benefits consultant, will develop an educational program around P3 that will communicate the benefits that employees would derive from the test.
4. The education program should result in a good uptake from employees that can benefit from pharmacogenetic testing. The education program typically starts 2 – 3 months prior to the formal launch of the program.
5. P3 will provide and advise the participating employees, on consent, confidentiality and privacy to ensure their full protection. P3 will develop legal documentation, subject to your organization's approval.
6. P3 will supply the results of the pharmacogenetic test in accordance with the employee signed consent, and in accordance with PIPEDA and other privacy laws. P3 will support the employees and their healthcare providers in the interpretation of the results of the test.
7. P3 will track each case from first contact to outcome for an employee. P3 will collaborate with the employer and/ or the employer's benefit consultant during the one-year period to audit this project.
8. P3 will deliver a comprehensive confidential report to the employer clearly quantifying the return on investment on the pharmacogenetic plan, as well as

information on the general status of the overall mental health of the organization, while fully respecting the privacy of the employees that participate.

9. The report may uncover other mental health issues and trends within your organization, so the employer can formulate resources to areas in need of help.
10. The pilot project will strengthen the “commitment” of the organization to their Workplace Mental Health Strategy, and will compliment other company sponsored support programs if applicable.
11. At the delivery of our report, participating employers would be in a better position to evaluate the usefulness of our services in pharmacogenetics. The program may be renewed on a yearly basis at rates appropriate to both Personalized Prescribing and the employer.

To set up a consultation for your organization, please click here to email our team.

The Science of Pharmacogenetics

It is the study of how medications are metabolized by individuals based on their unique genetics.

Pharmacogenetics is an established field of medicine that is making huge strides in the way medications are prescribed. This science provides a patient's doctor with specific medication recommendations based on a patient's specific genetic variations.

Just as hair color varies across the population, liver enzymes vary from person to person. Some of us may be "good metabolizers" of certain drugs, while others may be "poor metabolizers" and "ultra-metabolizers". Pharmacogenetic testing analyzes the genetic code within the liver enzymes to predict the type of metabolizers we are, indicating the type and dose of medications that we should or should not ingest.

The Clinical Pharmacogenetics Implementation Consortium (CPIC) is a panel of the most qualified genetic experts, medical doctors and pharmacists. They rate and publish pharmacogenetic recommendations and findings to encourage the use of the science. A high rating by CPIC indicates that the recommendation attached to a drug is valid for safe use in a clinical setting. The psychiatric medication category has many recommendations that have been ranked at the highest level by CPIC and have been incorporated into our test.

Technology has advanced dramatically recently, making pharmacogenetic testing a simple task. The test can be done with a simple non-invasive cheek swab – much like rubbing a Q-tip on the inside of your cheek – and mailed to a state-of-the-art genetic laboratory to have the results processed. Once processed, a simple-to-read drug compatibility report is sent to the patient's doctor so that they can personalize their medications.

Pharmacogenetics testing is not the same as genetic testing for disease risk. At any point, conducting a pharmacogenetic test should never reveal any predisposition to a disease. If it does, it should be removed from the pharmacogenetic panel, as many people do not want to know about this information to avoid the potential for genetic discrimination.

References

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