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Pharmacogenomic Testing in Community Pharmacies: Ethical Considerations

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ABSTRACT

Pharmacists are among the most accessible healthcare professionals, and they are well-positioned to lead innovative clinical efforts like pharmacogenomics (PGx) services. It's important to comprehend pharmacists' and patients' perspectives of PGx, as well as the potential impediments to incorporating it into ordinary clinical practice. Institutions interested in launching a PGx programme should devise ways to address difficulties such as educational knowledge gaps, informatics, and reimbursement issues. The criteria for delivering complete genetic data for tailored medication therapy are strong institutional support, well-defined goals, standardised methods, and ways to educate doctors and patients.

Key Words: Community Pharmacist, Pharmacogenomics, Genetic testing, Pharmacogenetics.

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INTRODUCTION

The Human Genome Project's completion in 2003 sparked hopes that the knowledge would transform medical treatment and provide new scientific, business, and medical paradigms. While many of those dreams are only now coming true, the resulting field of pharmacogenomics (PGx) has progressed significantly over the last decade.¹ Pharmacogenomics is the study of how genetic diversity in drug-metabolizing enzymes, receptors, transporters, and targets contributes to phenotypic variance in drug response, such as toxicity or lower effectiveness.² One of the most important paths for personalising a patient's medication is pharmacogenomics (PGx) testing, which examines a patient's genetic composition in relation to drug transport, metabolism,

and targets.³ the clinical application of pharmacogenomics is a fascinating area that has the potential to improve patient care quality.²

Why Community Pharmacist?

The necessity of pharmacists in delivering PGx testing is becoming more widely recognized. 'Pharmacogenomics may abide more easily in the purview of pharmacists than prescribers, at least as far as programme creation and leadership are concerned,' according to a prescriber editorialist. Community pharmacists are the ideal choice for a variety of reasons. Their understanding of pharmacological characteristics, pharmacokinetics, and drug-drug interactions, as well as their patient counseling skills, would enable them to use pharmacogenomics data to screen for drug-gene interactions in the same manner that drug-drug or drug-allergy interactions are checked.³

Pharmacists' recommendations are currently based on observable patient factors such as age, weight, comorbidities, and concurrent medications, with genetics being generally ignored.

Genetic variables, on the other hand, are thought to have a role in between 25% and 50% of incorrect medication responses. In clinical practice, knowing which medicines to take and which to avoid for a patient can be difficult.⁴ Pharmacists' involvement in optimising medicine use based on genetic testing results are changing rapidly.⁵ It is important that we understand the attitudes of pharmacists' and patients towards PGx as well as the potential barriers for incorporating it into daily clinical practice.⁶ One of the greatest barrier to the widespread adoption of PGx testing is health practitioners' lack of experience, familiarity with the tests, and ability to integrate the results into clinical practice.³

Pharmacist role in Patient Education

Pharmacists' involvement in optimizing drug use based on genetic testing results is still developing. Results interpretation, genotype-guided drug selection and adjustment, pharmaceutical procurement, adverse reaction monitoring, and patient education are all tasks performed by pharmacists. Institutions interested in launching a PGx programme should devise strategies to address issues such as educational knowledge gaps, informatics, and reimbursement concerns.⁵

Laboratory Billing: Economic considerations

Pharmacists who provide pharmacogenomic testing services are likely to get billing questions about the lab tests. Despite the fact that the tests will be billed by the laboratory firm rather than the pharmacy, pharmacists must be prepared to speak with worried patients about the situation. Because insurance policies change more frequently than the literature can keep up with, it's preferable to get the most up-to-date information on pharmacogenomic testing from lab testing firms or insurance companies directly. Patients should be educated about their specific insurance coverage prior to testing, as pharmacogenomic tests can cost hundreds of dollars out of pocket. Working with the lab billing department, which may have resources for people with minimal coverage, is another option. Pharmacists must become familiar with the realities of insurance coverage for lab testing and make efforts to stay current in order to provide accurate information to their patients; a lack of ability to answer these questions, as well as any shift in the

burden to the patients, will likely reduce interest in pharmacogenomic testing services offered in community pharmacies.⁷

Benefits of Pharmacogenomic testing:

The goals of pharmacogenomic testing are increasing the likelihood of treatment success while minimizing the occurrence of adverse medication responses.

For more than 80 drugs, over 20 genes have been identified as having demonstrated therapeutic value. Randomized controlled trials back the use of pharmacogenomic testing to guide warfarin, abacavir, and antidepressant prescribing. There is evidence that pharmacogenomic testing may have a positive impact.⁴

Pharmacogenomic testing has the potential to considerably benefit patients by allowing for personalised medication management, improving efficacy, and lowering the risk of side effects. However, there are a few key concerns that must be solved before the full promise of pharmacogenomic testing can be realised. The current challenges affecting the deployment of pharmacogenomic testing in clinical practice techniques, results reporting, test selection, clinical interpretation of the results, cost-effectiveness, and the long-term application of pharmacogenomic results in clinical practice.⁸

Future perspectives

To increase the standardisation of testing and reporting of the results, laboratories must work together. Clinicians require more educational opportunities in order to better understand which tests to order and how to interpret the results. To promote the use of clinically actionable results to improve patient care, electronic health records and other healthcare systems must improve their storage and interoperability of pharmacogenomics test results.⁸ Pharmacists are still positive about pharmacogenomics, but its application in clinical practice is still limited. Identifying pharmacists' educational preferences may aid in the creation of instructional programmes to assist them in incorporating pharmacogenomics into their clinical practice.⁹ Because community pharmacists are on the front lines of health care, they will also be on the front lines of direct-to-consumer pharmacogenomic testing. Community pharmacists will almost certainly be

called upon to advise patients on the interpretation and proper use of direct-to-consumer pharmacogenomic test results in the near future.¹⁰ Patient feedback, interpretation, and use of the results will all play a part in the future development and implementation of PGx programmes.¹¹ Future researches could look into how community pharmacists can communicate with patients about PGx in the context of these themes, in order to assist them in making better health care decisions.¹²

Conclusion

Pharmacogenetic testing can aid in the identification of primary care patients who are at a higher risk of medication toxicity, poor response, or treatment failure, as well as guiding drug therapy. Despite the fact that testing is becoming more widely available, physicians are still unprepared to employ pharmacogenetic testing for clinical decision-making on a regular basis to overcome the challenges to pharmacogenetic testing in primary care, practice-based tools are required. Improving the quality of studies that use contingent valuation to value pharmaceutical services would help the profession advertise pharmacy services to consumers and may help practitioners who want to include different pharmacy services into their practice environments. Understanding what consumers value in pharmacy services, as well as their financial readiness to pay for such services, will be critical as the profession works to build a sustainable and economically viable role within changing health care systems.

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