5 Key Considerations to Reduce PGx Testing Costs

ASK THE EXPERT ARTICLE

Creating a cost-effective Pharmacogenomics (PGx) testing program that balances the demand for personalized medicine and budget constraints is crucial. Laboratories must navigate high testing costs while maintaining quality and efficiency. Dr. Vicky Pratt, PGx expert and world renowned thought leader, proposes five key considerations in this article to reduce PGx testing costs and establish a sustainable and economically viable PGx testing program. With these measures in place, cost-effective PGx testing is achievable.

> *"...these unforeseen costs could threaten the viability of a PGx testing program."*
>
> *— Dr. Vicky Pratt*

During her time leading and working with PGx laboratories, Dr. Pratt has identified the most common challenges that can drive testing costs two to three times higher than what was originally expected. By implementing the following practical strategies, laboratories can significantly reduce costs without compromising the accuracy and breadth of genetic information obtained.

Vicky Pratt, PhD
Director of Scientific Affairs
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5 Key Considerations to Reduce PGx Testing Costs – *continued*

1. Employ a Targeted Approach to Testing

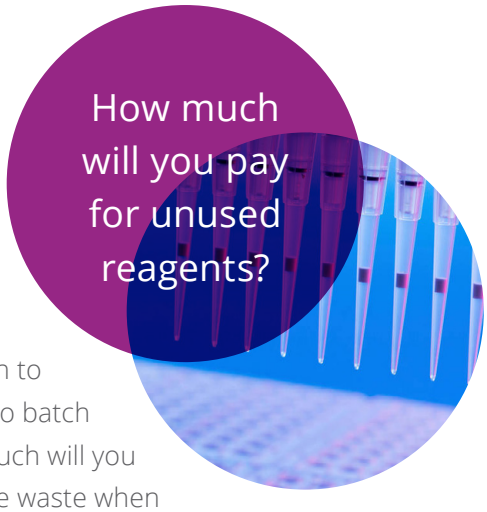
A PGx panel should include known variants of actionable genes as recommended by leading societies and governing bodies. Different technologies can have very different costs depending on the number of variants in the panel. Does your current technology offer high multiplexing capabilities that result in a reasonable upfront price? How about the flexibility to easily add new variants to the panel when the supporting evidence and subsequent guidelines and recommendations are updated? Consider your options to help reduce the overall cost per sample.

2. Eliminate the Need to Process Multiple Replicates Per Sample

Assay drop-out is a challenge for many PGx technologies. Failing assays result in incomplete genetic information that cannot be reported. To meet turnaround time (TAT) obligations, **labs often run 2 replicates for every sample** to ensure complete results on the first pass. Running multiple replicates effectively doubles the reagent cost per sample. If your current workflow requires multiple replicates per sample to account for testing failures, consider going in a different direction.

3. Minimize Reagent Waste

Paying for unused reagents is a quick way to increase costs. Remember that the vendor's cost per test assumes 100% reagent utilization. Most pre-filled cartridges and similar consumables can only be used once. **If there aren't enough samples to fill the cartridge, the remaining reagent is wasted.** This can be especially challenging in an environment with unpredictable run volumes. Fewer samples and higher-than-expected costs are a challenging combination to overcome. Does your lab wait until there is sufficient volume to batch samples? If you process a smaller number of samples, how much will you pay for unused reagents? Consider technologies that minimize waste when sample volumes don't match the optimal batch size.



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5 Key Considerations to Reduce PGx Testing Costs – *continued*

4. Consolidate to a Single Workflow

Many PGx programs need genotyping and copy number variation (CNV) information to make their recommendations. Unfortunately, this often means using multiple platforms, which increases cost and impacts lab efficiency. Even if a single platform can perform both genotyping and CNV, it may still require separate workflows. **Consolidating genotyping and copy number variation** to a single process, run, and instrument can save precious time and money.

5. Avoid Multiple Assays/Replicates for Copy Number Calling

To get an accurate copy number call, some methods require 3-4 replicates per sample for every assay that is used. Given the importance of detecting CYP2D6 hybrid alleles, labs are testing 3 or more assays per sample to obtain broader gene coverage. That can mean running 12 replicates for every sample for copy number results alone. Consider choosing a technology that can accurately provide copy number data with one assay using a single replicate.

About Dr. Vicky Pratt

Dr. Vicky Pratt is a world-renowned thought leader in the pharmacogenetics space and the Director of Scientific Affairs with Agena Bioscience®. As an expert in the field, she has served as the past President of the Association for Molecular Pathology (AMP) and on the U.S. Secretary of Health and Human Services Advisory Committee on Genetics. She has authored PGx recommendations and guidelines in collaboration with organizations such as the Clinical Pharmacogenetics Implementation Consortium (CPIC), including more than 75 peer-reviewed manuscripts and book chapters.

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