White Paper

Challenges in Clinical Genomics Testing

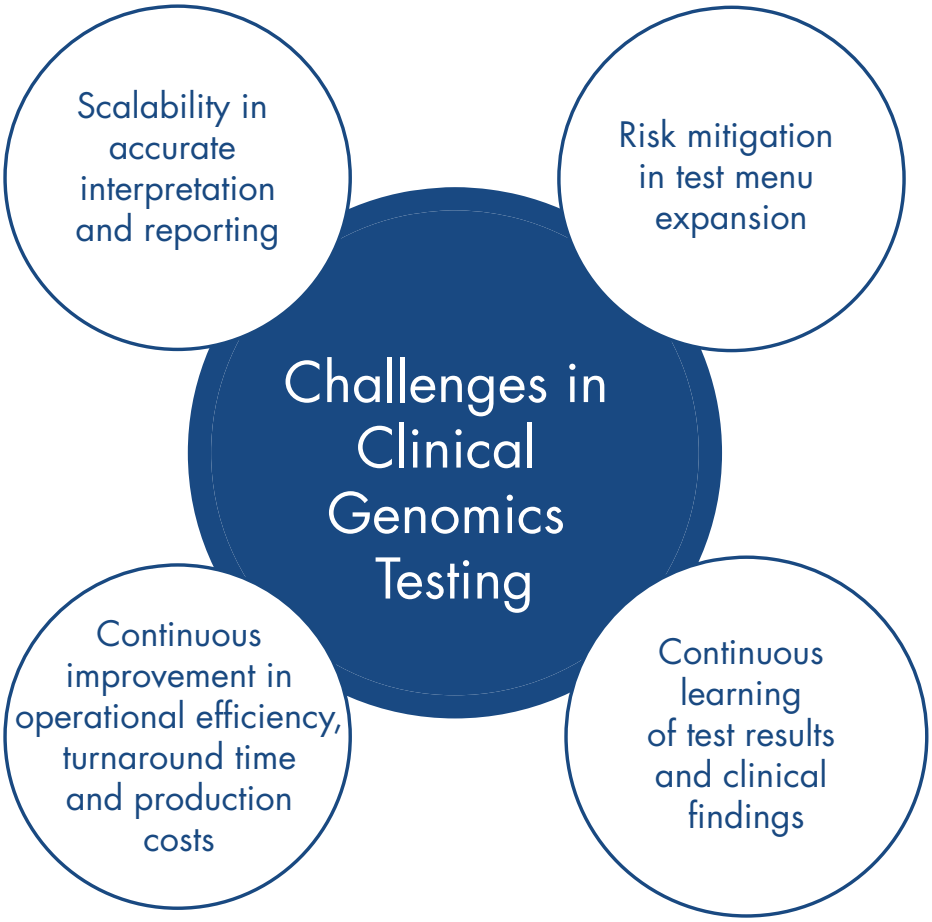
QIAGEN allows your lab to achieve efficiencies and mitigate risk in the development and implementation of NGS genetic tests

Sample to Insight

The viability of clinical testing laboratories is dependent upon numerous challenges throughout the development and implementation continuum. Inefficiencies occur across this continuum and present significant risk for any laboratory seeking to grow its operation.

One major source of risk for clinical labs is the lack of interoperability and integration across various commercial, open source, and proprietary software components. Many open source solutions are not designed for the rigors of a testing lab, compounding the software problem. The dynamic nature of NGS technologies along with rapid publication rates and changes in professional guidelines make it even more challenging to interpret test results accurately.

At QIAGEN, our enterprise bioinformatics solutions have been developed under highly rigorous commercial design practices. Our solutions provide operational continuity across the entire development and implementation spectrum and are compatible with all major commercially available NGS systems. These solutions are powered by our publicly available and continually curated QIAGEN Knowledge Base, enabling laboratories to stay current in test interpretation and reporting with a vast source of curated scientific and clinical information. Collectively, our solutions have been designed to support any clinical laboratory to scale efficiently with test menus, volume, and data.



With our leadership in commercial-grade development practices, industrialized architecture for knowledge curation, and scalability, any genomics testing laboratory can adopt NGS capabilities and address the following challenges:

CHALLENGE 1:
Scalability in sourcing, curating, and provisioning scientific and clinical findings for accurate interpretation and reporting

Interpreting and reporting NGS test results requires the integration of scientific publications, drug labels, clinical trials, professional guidelines, clinical precedents, and numerous third-party databases. The scale and volume of this information is expected to grow exponentially as the biomedical community learns more about the genetic cause of diseases as well as their treatment options and outcomes. Without access to automated, scalable solutions that meet this challenge, clinical testing laboratories are at risk of under-interpreting their test results.

CHALLENGE 2:
Risk mitigation in test menu expansion

Many labs must rapidly and efficiently expand their test menus to remain commercially viable. However, the development and launch of a new test requires a large investment in time and effort to analyze scientific and clinical precedents and determine the set of genes that provide the highest diagnostic value for a target patient population.

Following gene selection, labs must optimize myriad parameters related to assay development, data processing, variant calling algorithms, and report design. Without access to a curated knowledge base as well as data processing and algorithm development tools, lab teams are hindered in their ability to rapidly design and introduce new tests.

CHALLENGE 3:
Continuous improvement in operational efficiency, turnaround time, and production costs

Costs and resources are limiting factors in the ability of a clinical lab to operate efficiently. Inadequate bioinformatics solutions lead to higher production costs and extend turnaround time for test results. QIAGEN's bioinformatics solutions have been designed to integrate with all aspects of the clinical genomics environment to provide the most robust, all-inclusive, and cost-effective tool for clinical labs.

Whether labs are scaling their manual content management to an automated content management system or expanding from a development to a production environment with higher test volume and lower turnaround times, QIAGEN provides the ability to scale to any operational level.

CHALLENGE 4:
Enable continuous learning of test results and clinical findings

Clinical labs at production capacity run thousands of tests, many with some clinical or technical relationship to others. Valuable hidden information resides in each test and has the potential to improve analytical methods, reduce background noise, and ultimately increase the accuracy of test results. Without a complete and integrated bioinformatics solution, this information can be lost. QIAGEN's bioinformatics solutions allow users to continuously accumulate, learn, and apply this information in production pipelines to dramatically improve future results. These tools also provide the necessary channels to integrate and update annotations for reporting actionable results in a real-time fashion.

Conclusion

QIAGEN allows your lab to achieve efficiencies and mitigate risk in the development and implementation of NGS genetic tests. Our solutions provide operational continuity across the entire test development spectrum and are compatible with all major commercially available NGS systems. We enable laboratories to stay current in test interpretation and reporting with a vast source of curated scientific and clinical information from our publicly available and continually curated QIAGEN Knowledge Base. Together, our solutions have been designed to support any clinical laboratory to scale efficiently with test menus, volume, and data.

To learn more from a sales or support solution specialist, contact us using the information below:

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