

North America Carrier Testing Services Market Size and Forecast (2021 - 2031)

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Abstracts

The North America Carrier Testing Services Market is projected to grow significantly, reaching an estimated US\$ 1,100.9 million by 2031, up from US\$ 373.0 million in 2024. This growth reflects a robust compound annual growth rate (CAGR) of 17.1% from 2025 to 2031.

Executive Summary and Market Analysis

The North America carrier testing services market is primarily segmented into three countries: the United States, Canada, and Mexico. North America is recognized as a leading region in the carrier testing services market due to its advanced healthcare infrastructure, high levels of awareness regarding genetic disorders, and the widespread adoption of next-generation sequencing (NGS) technologies. In the United States, carrier testing has become a standard component of preconception and prenatal care, supported by a network of genetic counselors who assist couples in understanding their genetic risks. The region's insurance systems and healthcare policies are conducive to genetic screening, facilitating access for individuals seeking testing.

The presence of major testing companies and laboratories in North America is crucial for ensuring quick turnaround times and high-quality services. This environment has attracted significant investments from both public and private sectors, focusing on the development of broader carrier panels, AI-driven interpretation methods, and more efficient sequencing technologies. These factors contribute to a sustained high demand for carrier testing services among fertility clinics, obstetric practices, and diagnostic laboratories, positioning North America as a leader in preventive reproductive genomics.

Despite the promising growth, the competitive landscape is intense, necessitating continuous innovation from companies to maintain their market positions. North America is expected to remain at the forefront of the global carrier testing market, both in terms of volume and technological advancements.

Strategic Insights

Market Segmentation Analysis

The North America Carrier Testing Services Market can be segmented by type, medical conditions, and end users:

By Type: The market is divided into Expanded Carrier Screening and Targeted Disease Carrier Screening. The Expanded Carrier Screening segment is anticipated to dominate the market in 2024.

By Medical Conditions: The market is categorized into Pulmonary Conditions, Hematological Conditions, Neurological Conditions, and Other Medical Conditions, with Pulmonary Conditions leading the market in 2024.

By End User: The market is segmented into Hospital-Based Laboratories, Diagnostic Laboratories, and Other End Users, where Hospital-Based Laboratories are expected to hold the largest share in 2024.

Market Outlook

The integration of AI-driven variant interpretation is revolutionizing the management and analysis of genetic data. As sequencing panels become more comprehensive, they generate a vast number of variants of uncertain significance (VUS), which challenges traditional manual workflows. As of 2018, approximately 75,000 genetic tests were available, with nearly ten new tests being introduced daily. By November 2022, the number of genetic tests available in the U.S. and globally had surged to approximately 129,624 and 197,779, respectively, reflecting a shift from single-gene tests to multi-gene panels.

AI models, including deep learning and transformer-based large language models (LLMs), are increasingly being utilized to analyze DNA sequences, providing valuable insights into the functional impact of genetic variants. Recent studies have shown that

machine learning algorithms can classify clinically reportable variants with high accuracy, significantly reducing the workload for geneticists. New AI models can also provide interpretable results, enhancing the understanding of variant impacts.

Explainable AI tools are streamlining variant analysis in genomic laboratories, with software like Emedgene (from Illumina) capable of reducing variant interpretation time by 50-75% in rare disease genomics. The trend towards AI platforms that integrate multi-omics data and predictive analytics, aligned with electronic health records, is gaining momentum. This shift has significant implications for the business side of carrier testing, as companies adopting AI-powered tools can improve performance, lower operational costs, and deliver clearer reports to clinicians and patients. As AI becomes standard practice, companies will likely differentiate themselves through unique interpretation pipelines and automated reporting systems, ultimately expanding carrier screening access to a broader population and meeting the rising demand for personalized reproductive health services.

Country Insights

The North America Carrier Testing Services Market is further segmented by country, with the United States holding the largest market share in 2024. The U.S. healthcare system is highly advanced and heavily focused on genetic testing and reproductive medicine. Genetic counseling, NGS, and comprehensive carrier screening panels are routinely integrated into clinical practice. Numerous reputable laboratory and biotechnology firms invest in CLIA-certified facilities, ensuring the provision of accurate and reliable carrier screening services. The use of expanded carrier screening has become standard in reproductive healthcare, particularly in preconception planning, prenatal care, and infertility treatments. Legal protections, such as the Genetic Information Nondiscrimination Act (GINA), bolster public trust in genetic testing, further promoting its adoption.

In conclusion, the U.S. market is characterized by fierce competition, ongoing innovation, and a strong commitment to developing preventive and personalized approaches to reproductive and genetic health.

Company Profiles

Key players in the North America Carrier Testing Services Market include F. Hoffmann-La Roche Ltd, Quest Diagnostics Inc, Eurofins Scientific SE, Myriad Genetics Inc, Laboratory Corp of America Holdings, MedGenome Inc, Gene By Gene Ltd, Thermo

Fisher Scientific Inc., Fulgent Genetics, Inc, and Illumina, Inc. These companies are pursuing various strategies, including expansion, product innovation, and mergers and acquisitions, to enhance their market presence and deliver innovative solutions to consumers.

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