



2025

DIAGNOSTICS

TRENDS

The rapid changes in the diagnostics industry are being driven by the growing need for non-invasive procedures, environmental initiatives, and technological advancements. Diagnostics are essential to modern healthcare, from liquid biopsies that revolutionize cancer detection to [wearable technology](#) that allows for continuous health monitoring. A future where individualized, effective, and environmentally friendly healthcare solutions are becoming more widely available is being shaped by emerging trends like AI-driven diagnostics, green manufacturing techniques, and point-of-care technologies. Healthcare professionals and business executives who want to improve patient outcomes and maximize the utilization of healthcare resources must comprehend these changing patterns.

In this report, we outline five trends impacting the diagnostics industry for 2025.

1 MINIMALLY
INVASIVE
DIAGNOSTICS
TAKE PRIORITY

2 SUSTAINABILITY IN
DIAGNOSTICS
THROUGH GREEN
MANUFACTURING

3 GOING PORTABLE
IN DIAGNOSTICS

4 AI-DRIVEN
DIAGNOSTICS
CONTINUE TO RISE

5 EVOLUTION IN
POINT-OF-CARE (POC)
DIAGNOSTICS

By providing ways to identify illnesses and track health conditions without the need for invasive treatments like tissue biopsies or surgery, non-invasive diagnostics are revolutionizing the healthcare industry. The biological markers found in bodily fluids that are readily accessible, including blood, urine, or saliva, are analyzed in these diagnostic procedures.

Among the most significant developments are [liquid biopsies](#), which identify circulating tumor DNA (ctDNA) in blood, enabling real-time tracking of the course of cancer, the effectiveness of treatment, and even the early identification of tumor alterations without the need for tissue samples. Minimally invasive prenatal testing lessens the need for more invasive prenatal procedures like amniocentesis by using maternal blood to check for genetic abnormalities in the fetus, such as Down Syndrome. Continuous glucose monitors (CGMs) and wearable technology offer non-invasive, real-time data to help manage diabetes and check heart health via biosensors and monitors in metabolic and cardiovascular health.

By eliminating the discomfort and dangers of intrusive treatments, non-invasive diagnostics not only increase patient comfort but also facilitate ongoing monitoring, which enables early illness identification and prompt action. With the development of technology, these diagnostics will be further combined with AI-powered tools and wearable health devices to provide more precise and individualized health insights. Their expanding uses are transforming prenatal care, chronic illness treatment, and oncology.

In 2023, the liquid biopsy market was valued at approximately USD \$10.85 billion and is expected to grow at a compound annual growth rate (CAGR) of 11.61% from 2024 to 2033, reaching around USD \$32.54 billion by 2033.

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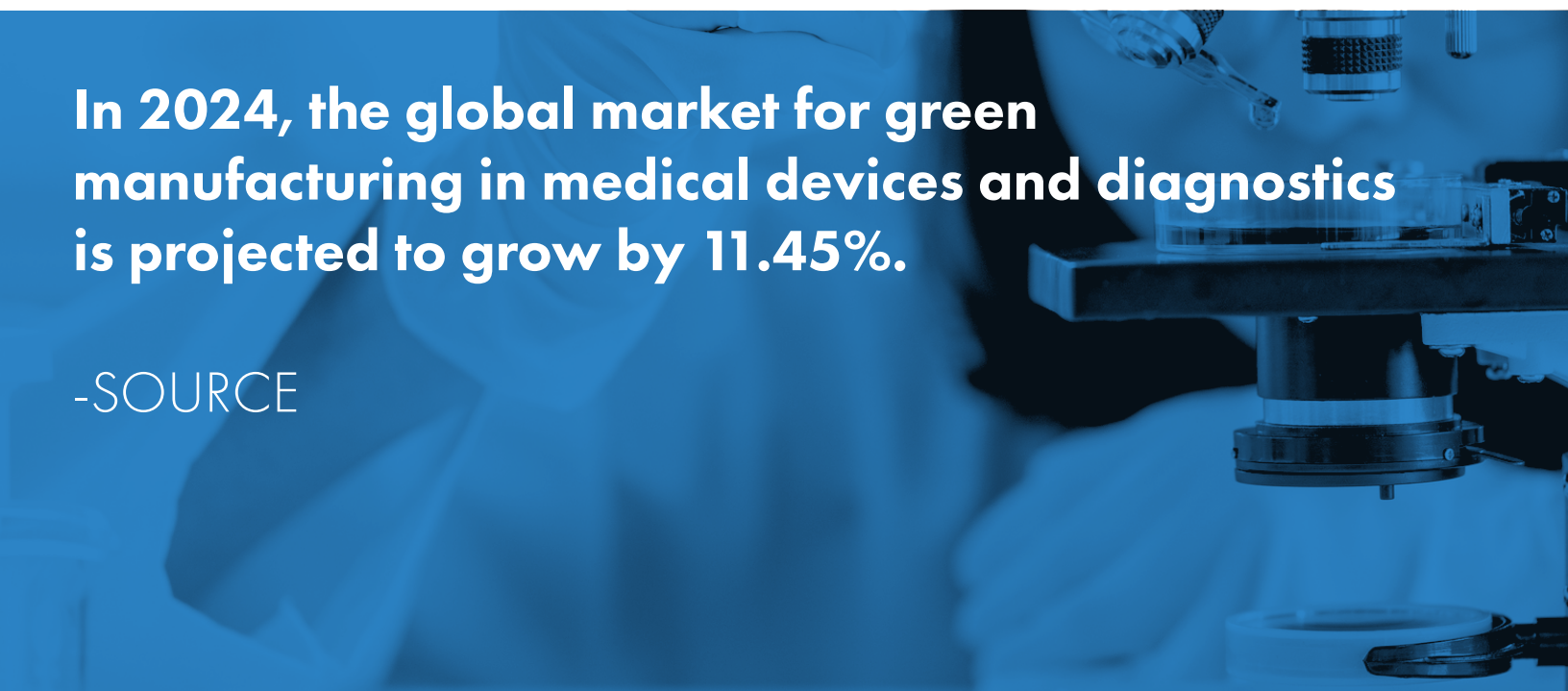
2 SUSTAINABILITY IN DIAGNOSTICS THROUGH GREEN MANUFACTURING

A developing trend in diagnostics is "green manufacturing," which tries to lessen the environmental impact of making instruments and gadgets for medical use. This strategy aims to reduce waste, energy use, and the use of hazardous compounds in industrial processes in order to make them more environmentally friendly. Greener practices are essential in the healthcare industry because of the large amount of waste generated, especially from electronic equipment and single-use plastics.

Using environmentally friendly materials, such as recyclable or biodegradable plastics, in diagnostic consumables like pipettes and vials is a crucial component of green production. This helps minimize the environmental impact of disposables and lessens dependency on polymers derived from petroleum. Also, energy-efficient production techniques are being used, such as the usage of renewable energy sources like solar and wind power and low-energy machines.

Waste reduction, in which producers streamline operations to produce less trash and recycle industrial byproducts, is another crucial factor. Green chemistry and other similar techniques assist reduce the amount of hazardous chemicals used in production, improving worker and environmental safety. Also, firms are increasingly focusing on developing a [sustainable supply chain](#), procuring raw materials locally and ensuring that suppliers adhere to eco-friendly practices.

These strategies support sustainability in healthcare and lessen the environmental impact of diagnostic production, paving the way for a more [environmentally friendly](#) future for the sector.



In 2024, the global market for green manufacturing in medical devices and diagnostics is projected to grow by 11.45%.

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3

GOING PORTABLE IN DIAGNOSTICS

With the ability to continuously monitor vital signs and other health data, wearable diagnostic technology is revolutionizing healthcare by facilitating early diagnosis and preventive care. Smartwatches such as the Apple Watch and Fitbit have sensors that measure heart rate, oxygen saturation, and sleep patterns to provide consumers with real-time health information. These characteristics are particularly helpful in the [early detection of diseases](#) such as atrial fibrillation, which if untreated can result in stroke.

A noteworthy area of progress is glucose monitoring, where wearable technology offers continuous, non-invasive blood sugar testing. For those with diabetes, this can be a life-changing tool. By replacing traditional finger-prick blood tests with wearable technology, patients can experience less discomfort and have a better understanding of daily glucose patterns. In addition, to track more intricate health parameters like body temperature and respiration rates, additional sensors are being created.

With wearables enabling the early diagnosis of health issues before they escalate, wearable technology is increasingly focusing on preventive treatment. Wearable diagnostics are a crucial component of the move towards [personalized medicine](#) since this data can trigger immediate medical actions in a timely manner. As the technology evolves, it will likely expand its role in comprehensive health monitoring and disease prevention.

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4 AI-DRIVEN DIAGNOSTICS CONTINUE TO RISE

Healthcare is being revolutionized by AI-driven diagnostics, which use artificial intelligence (AI) in diagnostic procedures to greatly increase speed and accuracy. AI-driven algorithms can analyze medical data, including pictures, pathology slides, and genetic data, far more quickly than human professionals. This enables medical professionals to decide more quickly and intelligently, which may result in early treatments and improved patient outcomes.

AI algorithms are used, for example, in radiology to evaluate MRIs and CT scans to identify early indications of cancers or other abnormalities that could be too subtle for a human to see. By lowering human error and increasing diagnostic accuracy, these technologies free up radiologists to work on more challenging situations. Similarly, AI in pathology facilitates the assessment of biopsy samples and improves the accuracy of identifying malignant cells. This expedites the diagnosing process, which facilitates quicker decisions on treatment, particularly in cases of serious illnesses like cancer.

AI is essential to the analysis of enormous volumes of genetic data in genomics. By finding mutations or specific biomarkers, AI assists in establishing individualized treatment plans for patients, notably in domains like oncology. [Precision medicine](#), which adjusts treatment to a patient's specific genetic composition, heavily relies on these individualized treatments.

AI can also automate repetitive diagnostic procedures, freeing up medical staff members to [concentrate on patient care](#) and more difficult decision-making. All things considered, AI-driven diagnostics are revolutionizing the healthcare industry and bringing forth more effective, precise, and individualized medical treatment—a major step toward data-driven precision medicine.



5 EVOLUTION IN POINT-OF-CARE (POC) DIAGNOSTICS

By offering rapid diagnostic results at or close to the patient's site without requiring conventional laboratory sets, point-of-care (POC) diagnostics are revolutionizing the healthcare industry. This method improves accessibility, especially in places with little resources or remote locations where laboratory infrastructure may be missing. POC diagnostics improve patient outcomes by offering quick diagnoses for diseases including diabetes, HIV, and tuberculosis. This allows healthcare providers to act quickly and based on data.

Recent developments in microfluidics and lab-on-a-chip technologies have made it possible to create small, compact devices that can carry out intricate tests with little or no sample. Further expediting patient care is the increasing use of smartphone-enabled diagnostics, which enable data transmission to healthcare practitioners for real-time analysis. POC diagnostics are particularly crucial for the treatment of long-term illnesses. For diabetic patients, continuous glucose monitors offer real-time blood glucose monitoring, enabling them to make timely medication adjustments.

POC diagnostics, which provide fast results for tests like cholesterol levels, are also being utilized more and more in cardiovascular care. Rapid antigen testing is a common tool used to prevent the transmission of viruses, and the COVID-19 pandemic further highlighted the importance of POC diagnostics. Future advancements in wearable technology combined with POC technologies should improve ongoing health monitoring and guarantee that patients receive therapy on time.



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LOOKING AHEAD

Minimally invasive diagnostics, AI-driven technologies, and green manufacturing practices are all contributing to the fast evolution of the diagnostic industry and the creation of a more efficient, sustainable, and individualized healthcare environment. Businesses must overcome the problem of adjusting to these advancements while upholding operational excellence as these trends [transform the industry](#).

Given our deep industry knowledge and consulting services, Clarkston is well-suited to help businesses in successfully navigating these changes – whether it's integrating point-of-care technologies, streamlining supply chains for sustainability, or [using AI](#) for diagnostics. [Reach out to our team](#) to learn more about how these advancements are influencing healthcare in the future and how we can work with you to stay ahead of the curve in this ever-evolving market.

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