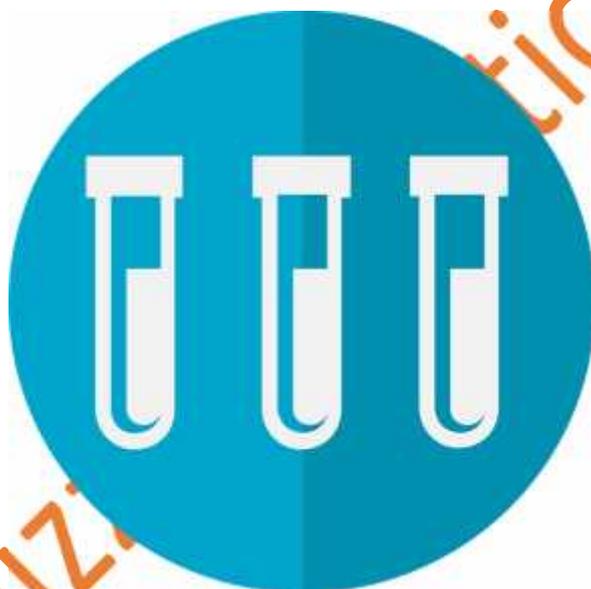


BLOOD TESTING WORLDWIDE

MARKET RESEARCH



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CONTENTS

Introduction	3
Market and Industry Overview.....	4
Geographical Segmentation.....	5
Market Trends.....	6
Target audience.....	7
Competition/Benchmark.....	9
Influencers	12
Summary.....	14

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INTRODUCTION

Blood screening or more commonly known as blood testing is an analysis conducted in a laboratory with the main goal to determine the general state of health, the presence of any harmful bacteria or viruses and to assess disease progression. Some of the major diseases for which blood testing is recommended are Cancer and AIDS/HIV. There are also a variety of cardiovascular diseases, anemia, and various types of diabetes where timely blood screening could help establish a basis for a good consumer diagnosis and treatment. Disregarding the numerous diseases, blood testing is always a good way of informing oneself on what's one's current health and potential health hazards.

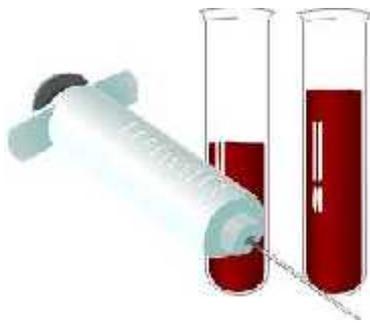
In recent years there have been, and there are numerous cases where blood tests have been wrongfully interpreted by physicians, which led to unforeseen complications in the patient's diagnosis. Practitioners of any kind of medical aid or service hold the responsibility to look after the patient's best interest and wellbeing, in this case, keeping the blood test results misinterpretations to a minimum. New and emerging technologies look to put this problem behind and focus on providing the patient with concrete and concise information concerning their health. Those who manage to establish platforms that offer time-saving and reliable medical advice by using cost-effective technologies and effortlessness in the application are bound in achieving a competitive edge.

In this market research, we will provide the reader with information about the industry and market overview, segmentation, trends, target audiences, competitors and potential future partners about Blood testing industry.

MARKET AND INDUSTRY OVERVIEW

After an extensive search on the market and industry, we came up with the following information.

The latest [projections](#) that we found about the Blood testing Global Market share are made by Grand View Research. According to the report, the Global Blood testing market size is anticipated to reach USD 62.9 billion by 2024. Growing adoption of testing and screening methodologies that enhance near-patient diagnosis through enhanced blood testing that reduce diagnostic turnaround times and lower hospitals stay durations is a major factor expected to provide lucrative growth in demand for the market.



According to the report [Blood Testing Market Size Research Report 2014-2020](#), the blood testing market growth is **generally driven by the aging population**, seen as they are the segment of the populace that is undergoing a lot of medical trials and tests in response to their failing health. But the market is not limited only by the age segmentation, the **ever-growing instances of various common diseases** such as hepatitis, human immunodeficiency virus (HIV) infection, thyroids, genetic disorders, bacterial and viral allergic disorders and so on, all contribute to the increasing demand of people getting their blood tested and learn about their welfare.

Point worth mentioning is that the **wealthier world populace** also accounts for the growth of the blood testing market, the wealthier the person is, the more available all the healthcare instruments and tests are to them. Another factor that dictates the market growth is the **escalating demand for point of care testing (POCT)**, which is medical diagnostic testing performed outside the clinical laboratory in close proximity to where the patient is receiving care.

If we made a segmentation on the market there are 6 categories of how the Blood testing market can be categorized. All categories are listed below.

1. Blood Testing Market by Testing Types;
2. Blood Testing Market by Method;
3. Blood Testing Market by Technology;
4. Blood Testing Market by Products and Services;

5. Blood Testing Market by End User;
6. Blood Testing Market by Disease;

Each category has different goals and specifics, therefore a deeper and more thorough research has to be done if we elaborate them separately. For us more important is to make a geographical segmentation so we can have the best perception where in the world is the best to invest. The overview by regions is presented in the chapter below.

GEOGRAPHICAL SEGMENTATION

To have a clearer picture of the current situation in the blood screening market, the market has been segmented geographically, into four major regions, namely North America, Europe, Asia-Pacific and the Rest of the World (RoW). This way of observing the blood testing industry allows seeing where the industry is most developed and advanced.

According to [Blood Testing Market Analysis By Test Type](#) report in 2015 the global blood testing market size was valued at USD \$51,1 billion, with over 40% of the total revenue, North America dominated the industry. North America acquired its largest market share with technological advancements such as the introduction of miniaturized diagnostic devices, rendering rapid and accurate test results that have higher market penetration in the region coupled with favorable medical insurance policies enhancing market adoption. Favorable government initiatives and CLIA waiver on POC testing devices were also notable factors that estimated the growth. After North America, Europe is the second largest market with 31% of the market share according to [The European Medical Technology Industry in figures](#).

Furthermore, the Asia-Pacific region has been identified as the fastest growing region in recent years with CAGR of over 4.0% from 2016 to 2024, with Japan, China, India, and Australia following. This is owned to the fact that in these countries there are high levels of unmet medical needs pertaining to target disease segments such as cardiovascular disorders, prostate cancer, diabetes, liver diseases, hepatotoxicity, and hyperlipidemia, according to a report available on the [GlobeNewswire](#).

Also, our information gathered from the [Grand View Research](#) published (2016), showcases that Asia Pacific is going to be the fastest growing region due to increasing investment by industry players, government initiatives, and raising awareness regarding the transmission of diseases during a blood transfusion.

Below we will present some of the key statistics that drive the growth of the blood screening and lab analysis market in this region.



This [infographic](#) shows that a large concentration of the world's total populace is stationed here, which makes for a huge potential clientele. Of the 3.7 billion people living in this region, 1.1 billion will become 50 years old by the year 2025, which places them in the category of elderly people with weakening immune systems, that needs regular checkups and various tests conducted in order to receive future health treatments and diagnosis.

In the Rest of the World region (RoW), we found that Latin America, Africa, and the Middle East are showing signs of potential markets for blood screening and laboratory analysis for the future. The lack of awareness, information and the limited knowledge regarding the technological advancements, paired up with the resilience to adopt new medical technologies have been determined to be the major culprits of restraining the market growth in this region. With expectations for steady growth of the economies of Brazil, Mexico, and South Africa, so too is the market for blood screening in these countries for the upcoming years.

MARKET TRENDS

It is good to know and provide insight on the current trending innovations, researches, technologies, gadgets and solutions that drive the blood testing industry forward. While researching the Blood Testing industry trends, we discovered many companies and labs that are innovative and are trying to reimagine blood screening.



A couple of Universities in the U.S. have researched and made remarkable progress in developing new methods and ways of blood testing and analyzing the samples. At the University of California - San Diego, the bioengineers have developed a new blood test that could detect cancer and pinpoint the location of the growing tumor, according to [an](#)

[article](#) posted on the university's News Center website. The method screens for a particular DNA signature called CpG methylation haplotypes, which are the addition of methyl groups to multiple adjacent CG sequences in a DNA molecule. Each tissue in the body can be identified by its unique signature of methylation haplotypes. Though far from perfect, researchers at the University of York have developed a [new sensor](#) that is capable of detecting multiple proteins and enzymes in a small volume of blood, which could significantly speed up diagnostic healthcare processes.

Aside from Universities, more specialized institutions have also been busy researching and developing new and user-friendly gadgets, applications and other solutions that will make blood screening and analysis more convenient and accessible.

As an example, a body [tracker](#) that allows users to track blood metabolites across daily, weekly or monthly samples and displays trends in a Web UI & an app. The user is also able to download their blood test at their convenience.

The biotechnology company providing diagnostic solutions, [i-calQ](#), has developed smartphone-based point-of-care integrated mobile diagnosis and decision support system. With biosensor-equipped smartphones to quantify, interpret, and record point-of-care diagnostic tests using a drop of blood or saliva, a test can be performed and the results interpreted anywhere and at any time.

According to an article called "[Technology Innovations Drive Lab Medicine Advances](#)" found on Lab Tests Online, there are a majority of technologically advanced tests, DNA blood tests, that screen for genetic abnormalities like Down Syndrome or early Cancer identification. Also, significant innovations are done with the Glucose monitoring smart watches, which replace the process of having the finger pricked and the blood drawn for analysis. And this is just a small part of all existing trends and methods.

TARGET AUDIENCE

In this chapter of the market research will point out to the potential clientele, consumers and audiences, their characteristics and the reasons for people undergoing blood screening.

Guided by the above findings, we can make an accurate representation of the characteristics of our target group, which will be presented below:

1. Elderly people – this is the populace that is undergoing a lot of medical trials, tests, and analysis in response to their failing health.

2. People with diseases – this part of the demographic includes people that are generally suffering from chronic diseases, or people with the flu looking for a regular checkup.
3. People with High income – in contrast to the people with low finances and no health insurances, wealthy people tend to receive medical care, tests and analysis much quicker and obtain the resources to protect and improve their health.
4. New trends – people these days are more addicted to the right information on time. These means want to try smart ways and technologies.

Blood screening technologies that are effective, precise, and efficient are high in demand by the consumers. Deriving from the saying "Time is money" the blood testing and analyzing technologies that reduce the time necessary to process and to present the test results to a minimum, are guaranteed to achieving a competitive edge. Aside from the time constraint on the results delivery, consumers are also displaying concerns regarding the transparency of the laboratories as to how a patient's samples are used in the lab analysis, according to acxiom.com.

For the consumer that has limited knowledge on the blood screening process and the finesse surrounding it, we included some of the most commonly encountered questions about blood tests that consumers look up on the Internet:

1. Why should I get a blood test?
2. When do I receive my test results?
3. How to interpret and understand my blood test results?
4. Is the blood testing company private and secure?
5. What should I do if something in the result is not good?

There are a huge amount of other more specific and technical questions regarding blood screening, but the questions provided above are the most frequently asked. Nowadays consumers almost always do a research on their medical symptoms before heading to their General Practitioner. The same thing applies for blood testing, consumers like to gather the most information possible so they can make an informative decision on the type of test they will take, the facility that will conduct it and the general tips regarding the whole blood testing experience.

COMPETITION/BENCHMARK

While screening the businesses in Blood testing industry we try to keep close to the Blood testing applications and which are their prepositions, that can be count as a good benchmark for our business. We segmented the competition in two categories as B2C and B2B application, and also by the type of OS they use.

We decided to find the right competition by methodology using Google search, typing the keywords “*Best blood test analysis for Android/iOS app*” and amongst the first couple of links was the website [AppCrawler](#), which displayed a variety of the most popular blood test apps downloaded for both, Android and iOS. Then we proceeded to look into the applications and what are their purposes. For iOS, the [18](#) most popular apps, 11 are categorized as Medical apps and 7 for Health & Fitness.

The Mobile Medical Apps aim is to help healthcare professionals improve and facilitate patient care, or provide valuable information on the consumer's health and wellbeing after feeding the app the necessary personal health information.

[MyQuest for Patients](#) is an app that besides offering the consumer easy to understand



Quest Diagnostics lab results anytime, the app allows the consumer to make appointments with their doctors, pay their bills or schedule medication reminders. The app is free.

[My Blood Test for iPad](#). The application provides a blood tests database which can be



expanded on by adding new values for any new blood test the consumer has taken. The application costs \$4.99.

[My INR+](#). This app helps consumers to better monitor their INR (International



Normalized Ratio), that's the time it takes for the blood to clot, after taking the adequate blood test. The app is designed to work in better correlation with consumers that have been prescribed specific medicines (Warfarin or

Coumadin). Consumers can input the medicine dosages and monitor their health with the app if the INR displays high values the consumers' health might be at risk. The app is free to download.

[MyChart](#) allows consumers to review blood test results and manage appointments with the doctor. Furthermore, the consumer can pay their bills with the app. The app is free of charge.



[RADAI](#). This app contains 3 calculators, DAS28 (a measure of disease activity in rheumatoid arthritis) CDAI (research tool used to quantify the symptoms of patients with [Crohn's disease and](#) SDAI (index very useful in making an objective, reproducible and comparable assessment of the rheumatoid arthritis activity). With the combined results from the three calculators, the consumer can assess the activity of rheumatoid arthritis at that particular time.



For the Android Operating System, there were a total of [40 apps](#) of which, 16 were for Medical use, 15 were designed for Health & Fitness purposes and the rest of the apps fell under a variety of categories, such as Educational, Casual, Entertainment, Tools apps and so on. Below we will showcase few of the best ranking apps since they are the ones that are downloaded the most.

[Focus On Lymphoma](#) - This is free of charge application, which helps consumers to understand their lymphoma and manage cancer treatments. Focus on Lymphoma provides detailed information regarding subtypes of lymphoma, allows for symptom tracking, charting the blood screening results and record doctor sessions.



[Medical Tests Meaning](#) - Just as the name states, this \$29.99 application helps consumers to understand a specific blood test. Whether a physician or a patient is using this app, it offers sizable amount information for interpreting the blood screening results.



[Normal Lab Values Reference](#) - With Normal Lab Values Reference, the consumer can access a database of over 200 lab tests that include medicine branches such as Biochemistry, Hematology, Immunology, Serology, Microbiology etc. This application is free of charge.



[Azumio](#) - Azumio is a leader in health and fitness apps on mobile devices with more than 70 million downloads to date on both iOS and Android platforms. Azumio is dedicated to the improvement of people's health and livelihood by influencing healthy behavior through the use of innovative mobile applications.



We believe that the user ranking and review system is crucial for the success and popularity of the new and upcoming mHealth apps that enter the market. The more the app receives positive reviews and rankings, the more attention it attracts and eventually the more downloads.

For our B2B competitors, we used the website Capterra.com, which lists the top Medical Lab Software applications. The list of competitors we comprised are the ones with the highest user ratings.



[LabCollector](#) - The company offers a unique Intranet based software, allowing centralized management of all lab data. By using LabCollector, lab teams can benefit from efficient information sharing and access, thanks to computer networks that are generally underused. They also build and implement customized and packaged IT solutions that meet the demand of highly competitive companies or labs. The company offers lab services like screening, detection, production and analysis whatever the application domain is: molecular biology, genomic, chemistry etc.



[Firebase](#). The company offers a wide range of services which help the development of a problem-ridden app. Some of their services include: Crash reporting, Authentication, Cloud Functions & Storage, Test Lab for Android OS and much more.



[LimitLIS](#) is a web-based solution that provides access to simple information from anywhere in the world. Furthermore, their services regarding instruments, billing, and EHR systems are integrated into a single system, decreasing the turnaround time for ordering, processing, releasing, and billing of tests and samples. The result reports are delivered to consumers via e-mail, fax and SMS, and in various other formats, ensuring the clientele satisfaction.



[ClinLab](#) is a Windows based, Internet and Web-enabled Laboratory information management system. It acts as a data warehouse for all lab results and includes reporting, data acquisition, label printing, electronic signoff and more. It provides numerous interface capabilities to a multitude of reference labs and practice systems.

We can notice that a lot of these applications "are one-time" downloads. With a relatively small purchasing cost or none at all. The apps present easy and user-friendly UI, offer a

sizeable amount of information regarding a specific medical topic. Some apps also allow for the establishment of communication channels with the consumer's General Practitioner. On the other side, the B2B companies offer solutions that will ease sorting out consumer data, but also provide lab test result to be delivered faster to the consumer via a multitude of ways and formats. Which means that they make the process easier for the physicians, for the laboratories, hospitals, and at the same time save their time and money.

INFLUENCERS

As important part for a startup business is to have good perception and to know its influencers or potential partners.

As a major influence in every industry or market, we find the government to be one of the most powerful ones. According to a report available on the [Businesswire](#)'s website, in the U.S. region, the governmental initiatives pertaining to prevent and control various infections, are likely to propel the demand for blood culture tests in the future.

For our influencers segment, aside from the governmental and technological limitations and opportunities, we identified 3 categories which we believe can directly influence the prosperity and well-being of a health service providing company. Those categories are Events and Fairs, People, Health & Wellness mobile applications.

Events and Fairs

We decided on events as one of our core influencers, because we recognize the benefits a business can receive by being a part of an event that can introduce new consumers and partners to the business's products and services and also spread awareness of the company's brand.

We identified [Informa, Life Sciences Exhibitions](#), to be that kind of an enabler. Informa Life Sciences Exhibitions is in charge of the healthcare portfolio within Informa's Global Exhibitions division and organizes 26 exhibitions yearly covering the Middle East, Africa, Asia, Europe, and US market, connecting more than 150,000 health care professionals worldwide and offering a range of marketing solutions for companies involved in the healthcare sector.

Another enabler that belongs to the largest volunteer-driven, non-profit health and education program in the nation, [9healthfair](#) with over 16,000 volunteers in the state of Colorado, provides affordable and convenient screenings and health education in order to

raise health awareness and provide people with the tools they need to take responsibility for their own health.

In our investigation, we found a couple of fairs that target the Healthcare & Diagnostic Industry as well as the Chemical Processing and Research Laboratory Industries by showcasing new technologies, applications, equipment and techniques that will allow Laboratories to conduct tests and screenings quicker and more efficiently. These are the most anticipated upcoming fairs:

- [MEDICA](#) - their main product categories include: Electromedicine / Medical Technology, Laboratory Equipment, Diagnostics, Information, and Communication Technology, Medical Services and Publications
- [FIME](#) – conferences held here will cover the topics of Health technology innovations, clinical Microbiology, Haematology, Point of care testing
- [AACC Scientific Meeting & Clinical Lab Expo](#) – visitors here will have the opportunity to connect with global leaders in clinical chemistry, molecular diagnostics, mass spectrometry, translational medicine, lab management, and other areas of breaking science in laboratory medicine.

People

We believe that a recommendation of the company's products and services will gain a sizable advantage if are presented by medical specialists or physicians, celebrities that host talk shows and other renown everyday celebrities. The most popular show of this kind was the Dr.Oz show. Today one the most popular shows that offer medical advice and discussions are CBS's [The Doctors](#) and [Dr.Phill](#).

Also, another way of reaching audiences is using the popular Podcasts, which can be downloaded and heard anywhere at any time. [InternetMedicine](#) is a website which holds a rich library of podcasts and other various useful medical information, ranging from medical apps to nanomedicine, robotics, and stem cell articles.

Health & Wellness Applications

The potential in the Health & Wellness apps is seen in offering the application developers to integrate the business's blood testing solution. By doing so, a more powerful and thorough application will be designed that will reach higher volumes of audiences. Relying

on the website [AppCrawlr](#) once again, by using the keywords “blood tests” we included the iOS and Android apps that had the highest rankings and best user reviews.

The first two apps [CSDroid](#) and [DAFNE online Android](#) are Android apps that are helping consumers with diabetes, we believe that providing them with a detailed information about their blood work could benefit them enormously not only in their battle against diabetes but also by portraying a comprehensive picture about their general health.

The following iOS apps, [Cholesterol Food Reference](#) and [Pomihealth](#) are providing consumers with information and figures regarding the cholesterol in the food they procure, monitoring their weight and blood sugar, as well as compare separate blood pressure measurements. This type of information can be generated by feeding the app personal information and consumer characteristics. The blood test the company offers will show more insightful and accurate depiction of what is going on inside the consumer’s organism.

SUMMARY

From the previous analysis, information, statistics, and researches presented we can draw several conclusions regarding the Blood testing market.

First, it can be concluded that according to last projection market size is growing and is anticipated to reach 62.9 billion USD by 2024. This blood testing market is generally driven by:

- **Aging population** - they are the segment of the populace that is undergoing a lot of medical trials and tests in response to their failing health.
- **Various common diseases** - all contribute to the increasing demand of people getting their blood tested and learn about their welfare.
- **Wealthier world populace** - the wealthier the person is, the more available all the healthcare instruments and tests are to them.
- **Demand for point of care testing** - time required for receiving the results is drastically shortened in comparison to some other tests, and they can be performed at or near the consumer’s location.

After the geographical overview of the regions, the America region dominated the industry with 40% of the total market share, followed by Europe with 31% of the market share. Asia-Pacific region has been identified as the fastest growing region in recent years with

CAGR of over 4.0% from 2016 to 2024, with Japan, China, India, and Australia following their lead.

There's been a lot of changes in the history of blood screening leading up to this day. The new technologies that are present on the blood testing market are driving the blood screening industry forward, and they are focused on providing the consumer with the most accurate information possible that reflects their health. Some of those trends are:

- Artificial Intelligence and Mobile applications;
- The usage of microchips to gather data for further analysis;
- Various sensors that prematurely detect health anomalies and signal that the patient's health might be in danger.

A conclusion is drawn that the technical advances leading to the development of innovative testing tools and equipment that are not location-based and time constricted, such as mobile applications for processing blood results, is playing a key role in driving the market growth for blood testing.

The company's competition are businesses that offer the same service to the same target audience and meets their demands. We have screened some of the most popular and downloaded iOS and Android applications. From them, we learned that the apps that are the most user-oriented, offer an abundance of medical information, have open communication channels with a medical specialist and don't require monthly installments are the ones most successful. Today technology makes the blood testing process easier for the physicians, for the laboratories, hospitals, and at the same time saves a lot of time and money.

As a crucial part of every startup business is to have good perception and to know its influencers or potential partners. The biggest and general influencer is the Government with all regulations and initiatives. Looking for other important influencers in the Blood testing industry we came up with few categories: Events and Fairs, People, Health & Wellness mobile applications, which can hinder or quicken the business's success.

Noteworthy are the lab technologies, equipment, and new analysis methods are presented and discussed on the upcoming laboratory expos MEDICA, FIME and the AACC Scientific Meeting & Clinical Lab Expo that are taking place in the following months. Here the business can expand its contacts and networking, promote its brand and product and potentially make partners. Other influencers or partners can be the specialists in the

industry. If the company has good references or reviews from doctors, specialists, or a significant TV talk show figure, the company could benefit greatly. To keep on par with the latest application trends we found that integrating the businesses' medical blood testing app or its features, with the well-established and popular applications from the Health & Wellness segment, could prove as a good way to either earn profits or spread the awareness of the company's brand and application.

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