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# Wearable Medical Devices Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028 Segmented By Product Type (Activity Monitors/Trackers, Smartwatches, Patches, Smart Clothing), By Type (Diagnostic Devices and Therapeutic Devices), By Purpose (Heart rate, Physical Activities, Blood oxygen saturation, Blood Pressure, Hearing Aids, Body Temperature, Posture, Others), By Site (Strap/Clip/Bracelet, Handheld, Headband, Shoe Sensors, Others), By Application (General Health & Fitness, Remote Patient Monitoring, Home Healthcare), By Distribution Channel (Non-Store-Based and Store-Based), By Business Segment (B2C and B2B), By Region and Competition

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## Abstracts

The Global Wearable Medical Devices Market has achieved a valuation of USD 24.64 Billion in 2022 and is poised for remarkable growth, with an anticipated Compound Annual Growth Rate (CAGR) of 15.63% through 2028. Wearable medical devices encompass a diverse array of healthcare technologies that individuals can comfortably wear to monitor and track various aspects of their health. These devices are designed for non-invasive and user-friendly use, incorporating sensors, connectivity features, and data analysis capabilities to collect and analyze pertinent health information. They offer real-time monitoring and feedback, empowering individuals, caregivers, and healthcare

professionals to make informed decisions regarding health and well-being. Common categories of wearable devices encompass fitness trackers, smartwatches, heart rate monitors, glucose monitors, and blood pressure monitors.

Wearable devices not only transmit health data but also provide mental health care by monitoring cognition and mood in real-time, facilitating personalized interventions. The growing popularity of wearable devices can be attributed to these and other similar applications. Wearable medical devices serve as practical and convenient technological tools, further enhanced by internet connectivity for seamless data transmission. These devices are endorsed by various healthcare organizations for the management of chronic diseases, which have been on the rise, contributing to increased mortality rates. Healthcare professionals can remotely and continuously monitor patients, delivering personalized care.

The primary advantage of wearable medical devices lies in their integration of smart sensors, enabling the measurement and monitoring of crucial physiological parameters such as heart rate, blood pressure, and body temperature. Among various medical Internet of Things (IoT) devices like hearables or ingestibles, wearable medical technology has emerged as the most popular choice.

Key Market Drivers

Increasing Prevalence of Chronic Diseases

Chronic diseases, also referred to as non-communicable diseases, are disorders or conditions that are typically not caused by infections but rather by unhealthy habits or behaviors. They can lead to long-term health issues, necessitating extensive treatment. Examples of diseases falling under this category include cardiovascular diseases, diabetes, chronic lung ailments, and various forms of cancer. According to the World Health Organization (WHO), chronic diseases account for nearly 74% of global deaths, with risk factors such as tobacco use, unhealthy diets, physical inactivity, and excessive alcohol consumption contributing to their growth.

Wearable medical devices offer significant benefits to patients with chronic diseases by facilitating diagnosis, monitoring, and disease intensity control. These devices collect substantial amounts of data over time, enabling individuals and healthcare professionals to analyze trends and patterns. This valuable information provides insights into treatment effectiveness, triggers for symptom exacerbation, and the impact of lifestyle modifications. By comprehending these patterns, individuals can make well-informed

decisions regarding their health management strategies. There has been a recent push by consumer wearable device companies to develop devices for comprehensive health monitoring. For example, Apple, Inc. (U.S.) has developed the Apple Watch Series 8, equipped with sensors that can detect abnormal heart rhythms and identify Atrial Fibrillation (AFib). With a 99.6% accuracy in sinus rhythm classification and precise identification of AFib, this watch has received clearance from the U.S. FDA.

Other watches and smart devices are also available to monitor patient vitals and track their health remotely, offering time and cost savings. Continuous glucose monitoring patches, blood pressure monitoring devices, and smart clothing are among the various wearable medical devices available. These factors, combined with healthcare providers' promotion of wearable medical devices, are expected to drive their increased usage and contribute to market growth.

Increasing Use of Remote Patient Monitoring and Telehealth Services

Telehealth encompasses healthcare services provided remotely or from locations outside of hospitals, utilizing telecommunication technologies. Remote patient monitoring, a component of telehealth, employs technologies to interact with patients from a distance. These services and technologies have experienced increased utilization since the onset of the COVID-19 pandemic. Given the considerable number of patients with chronic diseases, the adoption of wearable medical devices is expected to rise even further. Wearable medical devices facilitate remote monitoring of individuals with chronic conditions, enabling healthcare providers to access real-time patient data. This facilitates early detection of health issues, timely interventions, and remote consultations. Such capabilities are particularly valuable for individuals with limited mobility or those requiring frequent monitoring, as it minimizes the need for unnecessary hospital visits.

GluCare.Health (UAE), a diabetes center and digital therapeutics company, leverages continuous glucose monitoring systems like Fitbit and connected weighing scales to measure and collect patient data. They have appointed healthcare professionals to remotely connect with patients as needed. Additionally, a dedicated care team monitors patients' health data, including glucose levels, heart rate, and sleep patterns, while managing their medications.

Increasing Demand for Health Data Tracking

There has been a growing interest among individuals in recording and tracking

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information regarding their health habits. The personal informatics movement gained popularity with the introduction of mobile applications that facilitated the tracking of daily activities such as distance covered and calorie intake. This practice is also referred to as data journaling, life tracking, or health quantification. As more companies develop wearable devices equipped with accelerometers and sensors to automatically capture data, users are relieved of the burden of manually inputting information. Additionally, wearable devices that monitor blood oxygen levels, respiration rate, heart rate, heat flux, galvanic skin response, and skin temperature are being introduced by various companies. Consequently, the interest in health data tracking has surged.

Consumers now have the means to manage their health using wearable devices, smartphone applications, and other connected devices. However, achieving goals related to sleep improvement, calorie counting, weight loss, and fitness is not an easy task. Nevertheless, such convenient and immediate access to health information is reshaping consumer attitudes and expectations in the field of healthcare.

The focus is now on developing products that enable the automatic tracking of physiological signals, which can be realized through advancements in sensor technology. Nanoscale stress sensors, implantable sensing chips, optical biosensors, electronic biosensors, and other technologies are currently being developed to enable the seamless capture of various physiological functions. Ultimately, data capture will extend to devices and sensors embedded within our environment, rendering wearable devices obsolete. For instance, high-speed video can be used to visualize blood flow in a person's face, which can then be translated into pulse rate. In the short term, wearable devices will be designed in forms that resemble jewelry or adhesive patches, incorporating flexible electronics. The tracking of individual health data will be further enhanced by intelligent advisory and coaching software that can be customized to interpret data, provide alerts, and offer explanations and suggestions. These systems and devices will prove instrumental in optimizing athletic and physical performance. For instance, electronic biosensors can detect the level of lactic acid in sweat, enabling athletes to improve their training and enhance anaerobic metabolism efficiency.

Rising Demand for Round-The-Clock Monitoring

Due to sedentary lifestyles, the prevalence of diseases such as hypertension and diabetes is projected to rise in the forecast period. These diseases necessitate continuous monitoring of physiological parameters like blood pressure and blood sugar levels. This underscores the need for integrating healthcare data with portable devices, enabling real-time access for physicians, reducing errors, and driving industry demand.

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Additionally, the escalating mortality rates associated with the growing incidence of noncommunicable diseases are a significant concern, further fueling the demand for remote monitoring devices. These factors are expected to drive the market for wearable medical devices.

The increasing prevalence of chronic diseases and rising mortality rates are significant concerns for individuals and government organizations alike. Consequently, healthcare providers are placing greater emphasis on personalized care, including continuous patient monitoring. Wearable medical devices offer 24/7 monitoring capabilities, as many can be worn around the clock. As a result, the demand for wearable devices is expected to surge in the forecast period.

Moreover, technological advancements and appealing product features such as smartphone connectivity are driving the adoption of medical wearables. These devices are being developed to address various health issues, including pain management, heart arrhythmia, asthma, and COPD. For instance, individuals with potentially life-threatening heart conditions can use wearable electrocardiograph (ECG) devices to monitor heart rate and detect arrhythmias. These devices can record events such as shortness of breath, chest pains, and other concerning symptoms. Once recorded, the device measures vital parameters such as skin temperature, blood oxygen level, and heart rate. Another example includes wearable devices for pain management, often utilized in the medical industry to administer pain medication or provide transcutaneous electrical nerve stimulation.

Key Market Challenges

Lack of Awareness in Developing Countries

The lack of understanding among the populace in underdeveloped or developing regions could be a significant concern for the global wearable medical devices market in the coming years. In these locations, where access to education and healthcare resources may be limited, the adoption and acceptance of wearable medical devices may face obstacles. Moreover, the limited availability and affordability of smart phones and other advanced technologies further add to the challenges in expanding the wearable medical devices market in these regions. Overcoming these barriers will require innovative solutions and collaborations to ensure that the benefits of wearable medical devices reach all individuals, irrespective of their geographical location or socioeconomic status.

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Non-Availability of Reimbursement

The lack of reimbursement facilities, combined with the rising cost of medical diagnosis and therapies, has a significant impact on the adoption of healthcare services. It hinders the reduction of healthcare expenditure by impeding the early detection of diseases and timely intervention. Wearable medical devices, such as fitness trackers, smartwatches, wristbands, and headgear, which are utilized for activity tracking, routine monitoring, and vital parameter data collection, currently do not receive reimbursement. Consequently, these devices are primarily accessible to individuals with higher disposable income, thereby limiting their overall growth potential.

Certain products, such as sensors/chips like insulin pumps, are embedded into a patient's body and administer drug dosages at fixed intervals for the management of chronic conditions. These products are eligible for reimbursement by agencies in the U.S. and Europe. However, obtaining reimbursement requires extensive documentation and the support of scientific data.

Key Market Trends

Technological Advancements in The Field Of Artificial Intelligence

The rapid growth in the volume and complexity of data within the healthcare industry has spurred extensive research and exploration into developing feasible artificial intelligence solutions specifically tailored for wearable medical devices. These cutting-edge advancements aim to revolutionize healthcare by harnessing the power of AI to enhance remote monitoring and patient care. With the increasing popularity of mobile platforms and a growing preference for remote monitoring in the comfort of one's home, the demand for AI-powered wearable medical devices is skyrocketing. This surge in demand, coupled with the continuous technological advancements in the field of artificial intelligence, presents lucrative opportunities for the exponential growth of the wearable medical devices market throughout the forecast period. As the industry continues to evolve and innovate, these intelligent devices are poised to transform healthcare delivery, improving patient outcomes and revolutionizing the way we approach medical treatments.

Product innovations

The introduction and integration of these technologies in medical devices have significantly enhanced their efficiency in vital identification and health monitoring. These

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innovative advancements hold great promise in proactive health management, early disease diagnosis, and prevention, ultimately leading to improved patient outcomes. As a result, the growing wave of product innovations presents lucrative opportunities for market players in the wearable medical devices market during the forecast period. Furthermore, an increasing number of hospitals are now adopting digital surgical instrument monitoring systems, such as RFID-based solutions, to optimize the control and management of surgical tools. By expediting surgical procedures and ensuring the availability of appropriate equipment, these technologies have the potential to enhance both patient safety and hospital operational efficiency.

Segmental Insights

Type Insights

Based on the type, the market is segmented into diagnostic devices and therapeutic devices. The diagnostic devices segment dominated the market and accounted for the largest share of revenue in 2022. Among diagnostic devices, the neuromonitoring segment was the largest in the same year. The growing prevalence of neurological disorders is a key factor driving the growth of this segment.

The therapeutic device segment is expected to experience the fastest CAGR throughout the forecast period due to the increasing influx of therapeutic devices. Additionally, a robust pipeline of therapeutic devices, including intelligent asthma management products, wearable pain reliever devices, and insulin management devices, is expected to support market growth.

Site Insights

Based on the site segment, the market is segmented into strap/clip/bracelet, handheld, headband, shoe sensors, and others. The strap/clip/bracelet segment has emerged as the dominant force in the wearable medical devices market, securing the largest revenue share in 2022 and projected to maintain its dominance throughout the forecast period. Advanced products like smartwatches offer the ability to monitor various parameters including mobility, respiratory rate, and pulse rate, leveraging Bluetooth and cloud connectivity to drive segment growth.

Significant advancements in wrist-worn products, exemplified by Vital Connect's Health patch introduced in March 2014, have revolutionized the monitoring of multiple parameters such as heart rate, skin temperature, and step count. Moreover, industry

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giants like Samsung and Apple have introduced mobile apps that seamlessly integrate with wearable medical instruments, enabling data recording and digital display. These user-friendly apps have garnered attention and interest in routine health monitoring, consequently fueling market growth.

Regional Insights

North America dominated the market in 2022 due to the increasing prevalence of diabetes, cardiovascular disorders, and cancer in the region. The presence of a well-established healthcare infrastructure and the need for routine and continuous monitoring of chronic diseases further contribute to the market growth. The wearable medical devices market is expected to expand throughout the forecast period, driven by the rising prevalence of cancer, diabetes, and cardiovascular diseases, as well as the availability of modern healthcare facilities.

In contrast, the Asia Pacific region experiences exponential growth, supported by favorable government initiatives, a growing elderly population, and increased healthcare expenditure. The region also presents significant opportunities for infrastructure development in construction and healthcare, aiming to enhance medical research and services. The wearable medical devices market is witnessing expansion in the Asia-Pacific region, driven by favorable government activities, an increasing senior population, and rising healthcare expenditures.

Key Market Players

Medtronic plc

Siemens AG

Bayer AG

Omron Corporation

Withings SAS

Fitbit Inc.

Intelesens Ltd

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BioBeat Medical Ltd

Koninklinje Philips NV

Samsung Electronics Co. Ltd

Report Scope:

In this report, the Global Wearable Medical Devices Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Wearable Medical Devices Market, By Product Type:

Activity Monitors/Trackers

Smartwatches

Patches

Smart Clothing

Wearable Medical Devices Market, By Type:

Diagnostic Devices

Therapeutic Devices

Wearable Medical Devices Market, By Purpose:

Heart rate

Physical Activities

Blood oxygen saturation

Blood Pressure

Hearing Aids

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Body Temperature

Posture

Others

Wearable Medical Devices Market, By Site:

Strap/Clip/Bracelet

Handheld

Headband

Shoe Sensors

Others

Wearable Medical Devices Market, By Application:

General Health & Fitness

Remote Patient Monitoring

Home Healthcare

Wearable Medical Devices Market, By Distribution Channel:

Non-Store-Based

Store-Based

Wearable Medical Devices Market, By Business Segment:

B2C

B2B

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Wearable Medical Devices Market, By Region:

North America

United States

Canada

Mexico

Europe

France

United Kingdom

Italy

Germany

Spain

Asia-Pacific

China

India

Japan

Australia

South Korea

South America

Brazil

Argentina

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Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Kuwait

Turkey

Egypt

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Wearable Medical Devices Market.

Available Customizations:

Global Wearable Medical Devices market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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