

Temporal Artery Thermometers are intended to change the way the world takes temperature

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The global thermometer market will almost quadruple from 2020 to 2026. The CAGR worldwide is 6.5%. India is growing at a rate of more than 10% per year. Factors that determine the market include regulations and expanding thermometry usage in areas that had not previously used thermometers, like airports, restaurants, businesses, and shopping malls.

Shahid Akhter, editor, ETHealthworld, spoke to Ellen Minkels, Senior Director, International Business Development, Exergen Corporation, to find out about current trends in thermometry

Thermometer market: Trends

The global thermometer market size was valued at USD 1.3 billion in 2021 and is expected to expand at a compound annual growth rate (CAGR) of 8.7% from 2022 to 2030. Increase in the prevalence of infectious diseases and other medical conditions such as malaria and dengue, as well as rising awareness about the importance of body temperature monitoring are the major factors expected to drive the market. In addition, increasing applications of such devices in temperature monitoring for industrial, medical, laboratory, and imaging purposes are few other factors contributing towards market growth.

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Indian demographics and economic trends are highly favorable, because of the population growth, numbers of babies born every year, the ageing workforce which have all a profound impact on India's healthcare system. The factors are highly favorable which includes a healthy population of 1.33 billion, the GDP growth of an average of 7%, the working age population (16 to 65 years) which is over 65% of the total population, around 30 million babies born every year.

Due to the high demand for thermometers, many new providers have been able to enter the market. Some of these thermometers were of high quality. However, others were of low quality: inaccurate, not reliable, not robust. In many cases, these inferior products are based on measurement technologies that are unsuited to medical use. Especially non-contact infrared "guns" have seen the biggest growth due to their apparent ease of use, the fact that they are non-contact, and the fact that they seem very fast. Unfortunately, IR guns are the wrong choice when measuring the body temperature

of people waiting in line at - for example - a shopping mall. Even more so when treating patients in a hospital. Why? Because they are not accurate. The U.S. FDA strongly advises against the use of infrared non-contact thermometers or IR guns because these devices miss up to 40 to 50% of fevers. Research by an Australian university came to the same conclusion.

Thermometry: Latest advancements

There are a number of important developments in thermometry. Both healthcare professionals and the general public have become much more aware of the fact that timely diagnosis of fever is key in times of COVID-19, monkeypox, typhus, yellow fever, cholera etc.. The leading two technologies that have revolutionized clinical thermometry are tympanic or ear measurements and temporal artery thermometry. Both were invented and developed by the same person: **Dr. Frank Pompei and founder of Exergen Corporation. Having developed the tympanic measurement technology he soon realized tympanic has challenges because it requires a procedure that is invasive and thus uncomfortable for the patient. It is challenging to position the ear thermometer correctly in the ear canal. Both issues have a negative impact on productivity and accuracy. Besides that, the small sensors of tympanic thermometers break easily. This is why Dr. Pompei developed the temporal artery thermometry technology on which the Temporal Artery Thermometers like the TAT-2000 are based.**

Thermometer market: Challenges

We still have more work to do to raise awareness that accurately and frequently measuring body temperature is crucial. Fever is an early warning signal, and detecting fever is crucial for any medical treatment. This means that accuracy, ease of use and productivity are the most significant criteria when selecting a thermometer. Price obviously is a factor as well, so your best choice is a high-quality thermometer that is very easy to use, that is highly accurate and at the same time comes with



an affordable price. The market flooded with inferior and inaccurate temperature measurement devices. Widespread adoption of infra-red thermometer guns. What makes Exergen's Temporal Artery Thermometer so exclusive?

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The TAT-2000 of Exergen is a Temporal Artery Thermometer. It measures the temperature of the blood that circulates through the artery on the forehead. This is the temporal artery that lies just 2 millimeters below the skin. This location is ideal for performing a temperature measurement because it is always highly accessible, even for patients with morbid obesity. A gentle swipe with the thermometer across the forehead is all it takes to perform a highly accurate and very comfortable measurement.

The TAT-2000 measures the temperature of the blood 1000 times per second to make sure that it is measuring the highest temperature (so NOT the average temperature). The housing of

the thermometer is extremely solid, hence a 7-year warranty. The sensor is protected by a special "superplastic". Between patients it can be cleaned using some medicinal alcohol. No need for disposable, polluting and very expensive plastic caps. Although, if protocol requires the use of reusable or throw-away caps we obviously have these available.

Future plans?

Exergen has introduced the TAT-2000 in India. It is part of a family of Temporal Artery Thermometers. The TAT-2000 is a professional lite Temporal Artery Thermometer designed for use in hospitals, schools, and for example home care facilities. The TAT-5000 is heavy duty and for very intense use at hospitals. Next to that you will find connected versions of the TAT-5000 integrated in vital sign monitors of well-known companies like Philips, GE, Mindray, Nihon Kohden etc. The focus is increasing efficiency of the medical professional: doctors, nurses, paediatricians, physicians, intensivists etc.