Positron Emission Tomography Market - Growth, Trends, and Forecasts (2023 - 2028)

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Report description:

The positron emission tomography market was valued at USD 975 million in the base year. It is expected to reach USD 1,264 million by the end of the forecast period, registering a CAGR of 4.58%.

COVID-19 significantly affected the positron emission tomography market during the initial phases owing to the complete shutdown of radiological and scan services to reduce the spreading of the virus. Furthermore, due to the fear of the virus, people reduced their visits to scanning centers and clinics. According to research presented at the Society of Nuclear Medicine and Molecular Imaging (SNMMI) 2021 Annual Meeting, the effects of COVID-19 on the brain could be accurately measured with positron emission tomography (PET). Newly diagnosed COVID-19 patients, who required inpatient treatment and underwent PET brain scans, were found to have deficits in neuronal function and accompanying cognitive impairment. In some, this impairment continued for six months after diagnosis. With the role of PET during the COVID-19 pandemic being adequately explored, the paradigm is likely to be applied in combating various other epidemics in the future.

Some factors driving the market growth include the increasing demand for PET analysis in radiopharmaceuticals and the integration of X-ray tomography (CT) into PET. According to the World Nuclear Association April 2022 update, around 40 million nuclear medicine procedures are performed each year, and demand for radioisotopes is increasing by up to 5% annually. Over 10,000 hospitals worldwide use radioisotopes in medicine, and about 90% of the procedures are for diagnosis. As per the same source, in developed countries (about one-quarter of the world population), the frequency of diagnostic nuclear medicine is 1.9% per year, and the frequency of therapy with radioisotopes is about one-tenth. Also, in the United States, over 20 million nuclear medicine-related procedures are performed per year, and in Europe, about 10 million. In Australia, there are about 560,000 procedures performed per year, and of these, 470,000 are performed using reactor isotopes. The use of radiopharmaceuticals in diagnosis is growing at over 10% per year. PET evaluates organ and tissue functions using small amounts of radioactive materials known as radiotracers or radiopharmaceuticals, a special camera, and a computer. Hence, the rise in radiopharmaceutical analysis is likely to boost market growth over the forecast period.

Technological advancements like the introduction of Time of Flight (TOF) and the increasing popularity of hybrid imaging systems play an important role in the growth of the nuclear imaging market. For instance, in June 2022, researchers from the University of Oxford developed three DL-TOF models (based on U-Net convolutional neural networks) to transform non-TOF PET data into corresponding TOF-like images. The model employed different levels of TOF strength (low, medium, or high) to trade off contrast enhancement against noise reduction. Hence such innovations the in the field of PET are likely to boost the market growth over the forecast period. Moreover, the market players are focused on adopting partnership strategies to expand their product portfolios. For instance, in May 2021, GE Healthcare strengthened its PET imaging portfolio by acquiring Zionexa, a prominent innovator of in vivo oncology and neurology biomarkers that help enable more personalized healthcare.

Thus, due to the increasing demand for PET analysis in radiopharmaceuticals and technological advancements in PET imaging in oncology, the positron emission tomography market is expected to witness market growth over the forecast period. However, factors such as the shorter half-life of radioisotopes and stringent regulatory guidelines are expected to impede market growth in the near future.

Positron Emission Tomography Market Trends

The Oncology Segment is Expected to Hold a Significant Market Share Over the Forecast Period

PET scanners are commonly used in clinical trials as imaging biomarkers to determine the therapeutic response to novel cancer therapeutics. The 18Fluorine-2-fluoro-2-Deoxy-d-glucose (18F-FDG) PET scanners are oncology's most widely used imaging technique. The most apparent advantage associated with PET is its ability to detect substantial changes in glucose metabolism, or even complete shutoff of the neoplastic cell metabolism in the early stages, during the treatment process. This helps clinicians detect the effectiveness of a given antineoplastic treatment much earlier than traditional radiological detection.

Furthermore, FDG-PET/CT has become a cornerstone in several oncologic procedures, such as tumor staging and restaging, treatment efficacy assessment during or after treatment ends, and radiotherapy planning. For instance, as per the article published in August 2022 by Hindawi, F-18-fluorodeoxyglucose positron emission tomography/computed tomography (F-FDG PET/CT) can be used to diagnose pancreatic cancer, staging, radiotherapy planning, evaluation of efficacy, and recurrence, and differentiation from posttreatment fibrosis. As per the same source, f-FDG PET/CT can help improve the detection of occult metastases and help patients be evaluated more accurately and effectively before surgery. Factors such as a rise in the number of cancers are likely to boost the market growth over the forecast period. For instance, according to Globocan data, the number of cancer cases is estimated to be 24,044,406 by 2030, and the number is anticipated to rise to 28,887,940 by 2040. Thus, the need for early diagnosis and treatment of cancer cases has enhanced PET scanners' usage and led to market growth.

The market players are adopting various strategies such as product launches, developments, collaborations, expansions, and acquisitions to increase their market shares. For instance, in October 2021, Wipro GE Healthcare inaugurated India's first digital positron emission tomography and magnetic resonance imaging (PET MR) at the State Cancer Institute GMC, Guwahati, Assam. GE's SIGNA PET/MR 2.0 is India's fourth PET MR scanner and the first digital one. In July 2021, GE Healthcare backed a collaboration among Quibim, Full Body Insight, and Oncovision to build an innovative total-body PET/CT scanner for simultaneous whole-body imaging.

Thus, due to the technological advancements in PET imaging in oncology and the increasing demand for PET analysis in cancer, the oncology segment is likely to witness a growth in the positron emission tomography market over the forecast period.

North America is Expected to Witness a Growth in the Positron Emission Tomography Market Over the Forecast Period

North America is expected to witness growth in the positron emission tomography market owing to the factors such as

technological advancements in PET imaging for oncology and advanced diagnostics applications and high demand for precision diagnostics.

The rising prevalence of cancer cases, such as breast and prostate cancer, is also likely to enhance market growth significantly. For instance, as per the American Cancer Society 2022 update, the estimated number of new cancer cases in the United States is anticipated to be 1,918,030 in 2022. According to the same source, 290,560 new cases of breast cancer, 268,490 prostate cancer, and 151,030 cases of colorectum cancer are estimated in the United States in 2022. Moreover, government funding and the installation of PET scans in hospitals across North America are anticipated to boost market growth over the forecast period. For instance, in April 2022, Royal Victoria Regional Health Centre (RVH) is likely to install new medical imaging technology to enable earlier detection of some cancers. The Ontario government is investing more than USD 1 million, enabling RVH to construct space in the health center's Medical Imaging department to house a positron emission tomography-computer tomography (PET-CT) scanner.

Additionally, the market players are adopting various strategies such as product launches, developments, collaborations, and acquisitions to increase their market shares. For instance, in July 2021, Hawthorne, California-based Prescient Imaging gained the 510(k) clearance for its BBX-PET machine. In March 2021, Siemens Healthineers received FDA clearance for the Biograph Vision Quadra PET/CT Scanner, designed for clinical use and translational research to apply scientific research to create therapies and procedures that improve health outcomes. Furthermore, in October 2022, Health Canada approved Illuccix, a kit for the preparation of gallium-68 (68Ga) gozetotide (also known as PSMA-11) injection, a radioactive diagnostic agent indicated for positron emission tomography (PET) of PSMA-positive lesions in patients with prostate cancer. Such product approvals and launched relating to PET are likely to boost the market growth since those increase the product availability and competition in the studied region.

Thus, due to the technological advancements in PET imaging in oncology and the increase in technological advances in PET imaging, rise in product launches relating to PET imaging, North America is likely to witness a growth in the positron emission tomography market over the forecast period.

Positron Emission Tomography Market Competitor Analysis

The positron emission tomography market is consolidated. The companies are implementing certain strategic initiatives such as mergers, new product launches, acquisitions, and partnerships, which help them strengthen their market positions. Some market players include Agfa Healthcare, Oncovision, Neusoft Corporation, General Electric Company (GE Healthcare), and CMR Naviscan.

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