Fluorescence-guided Surgery Systems - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

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Report description:

The Fluorescence-guided Surgery Systems Market size is estimated at USD 124.27 million in 2025, and is expected to reach USD 263.95 million by 2030, at a CAGR of 16.26% during the forecast period (2025-2030).

The COVID-19 pandemic significantly impacted the fluorescence-guided surgery systems market due to the reduction in fluorescence-guided surgeries due to limited resources and the vulnerability of cancer patients to COVID-19. For instance, according to an article published by the Journal of Patient Safety in Surgery in June 2022, a study was conducted in Germany, which showed that the overall number of surgery patients fell by 11.7% and 22.7%, respectively, for primary and secondary procedures during the pandemic. In addition, the same source stated that approximately 376,000 digestive operations and 24% of cancer surgery cases were canceled in Germany during the pandemic. Thus, the studied market was severely impacted during the pandemic. However, the market is expected to regain its growth in the coming years, as the pandemic has currently subsided.

Major factors driving the growth of the market include the increasing number of surgical procedures for target diseases, the surge in demand for fluorescence-guided surgery systems, and the growth in the number of strategic developments by prominent players in the market.

The rising number of surgeries for target diseases such as cancer and cardiovascular diseases is expected to boost the market growth as it is expected to boost the usage of fluorescence-guided surgery systems. For instance, per an article published in the National Library of Medicine in October 2021, doctors perform over 500,000 open heart surgeries worldwide every year. Thus, the increasing number of cardiac surgeries is expected to drive the market in the future. Additionally, a study published in Methods and Application in Fluorescence in August 2021 stated that research interests in fluorescence-guided surgery continue to grow over various key aspects, such as fluorescent probe development and surgical system development, as well as its potential

clinical applications, due to the advantages of fluorescence-guided surgeries, such as higher contrast and sensitivity, less subjective use, and ease of instrument operation compared to traditional clinical imaging techniques.

Furthermore, research grants by companies for developing fluorescence-guided surgery systems are further expected to drive market growth. For instance, in April 2021, OnLume Surgical reported the completion of its Series A funding to assist its plans for commercial launch. OnLume raised over USD 7 Million in this financing, adding to a USD 2 Million Phase II SBIR grant from the National Cancer Institute (NCI) of the National Institutes of Health (NIH). The completion of the Series A financing, plus the Phase II grant from the National Cancer Institute (NCI), provides the resources for the launch of the company's fluorescence-guided surgery system.

Moreover, increasing mergers and acquisitions will drive the growth of the fluorescence-guided surgery systems market, resulting in the commercial availability of a wide range of devices and synergizing market strategies. For instance, in February 2021, Olympus Corporation acquired Quest Photonic Devices B.V. to strengthen its surgical endoscopy capabilities. Quest offers innovative technologies for multi-spectral imaging and imaging systems for medical applications, ranging from fluorescence imaging to photodynamic therapy. Thus, these aforementioned factors will collectively contribute to the growth of the market.

Thus, the above-mentioned factors, such as the rising number of surgeries for target diseases and increasing developments by major market players, are expected to boost market growth. However, stringent regulatory approvals and side effects associated with fluorescent dyes, and a lack of skilled professionals may restrain market growth over the forecast period.

Fluorescence Guided Surgery Systems Market Trends

Cancer Surgeries Segment is Expected to Hold a Significant Share Over the Forecast Period

The growth of the cancer surgeries segment is driven by an increase in the prevalence of cancer cases worldwide. The rising prevalence of cancer is expected to increase the number of cancer surgeries which will boost the demand for fluorescence-guided surgery systems that are used for cancer treatment. For instance, according to an article published by the Chinese Medical Journal in March 2022, China was experiencing a greater incidence of cancers. In 2022 approximately 4.8 million new cancer cases were diagnosed in China, out of which the most common was lung cancer. Such an increase in the prevalence of cancer is likely to boost the usage of fluorescence-guided surgery systems for cancer diagnosis, ultimately boosting segment growth.

Additionally, as per updates in January 2021, published by researchers at the University of New South Wales (UNSW) Sydney, the number of cancer patients requiring surgery each year is anticipated to increase to 13.8 million by 2040. According to their findings, the highest relative increase would occur in 34 low-income nations by 2040, with the number of cases requiring surgery expected to more than double (314,355 cases to 650,164). Such a huge rise in cancer surgeries will bolster the adoption of fluorescence-guided surgery systems across hospital settings, driving the segment's growth.

In addition, according to the study published in Frontiers in Neurology in June 2021, fluorescence-guided surgery (FGS) allows surgeons to see tumor tissue more clearly in the operating room, allowing for the most precise and safe removal of malignant brain tumors. Such studies will further lead to the growing adoption of these systems in tumor removal, driving the segment's growth.

Moreover, the rising grants and studies for the use of fluorescent probes in cancer surgery are expected to boost segment growth. For instance, in April 2022, the Imperial College awarded the Tate Group a grant to work on fluorescent probes for the visualization of tumors during cancer surgery. Similarly, in October 2021, Delray Medical Center published a breakthrough study focusing on 5ALA (fluorescent-guided surgery) for glioblastomas with the team at Mount Sinai Hospital.

Thus, the rising number of cancer cases coupled with the increasing number of cancer surgeries and the increasing research on fluorescence-guided surgery systems for tumor surgeries is expected to boost segment growth.

North America is Expected to Hold a Significant Share in the Market Over the Forecast Period

The fluorescence-guided surgery (FGS) system market is expected to have significant growth in North America owing to the high burden of chronic diseases like cancer and cardiovascular disease and the high awareness and demand for advanced surgical procedures in the country over the forecast period.

For instance, according to the American Cancer Society's (ACS) report for 2021 and 2023, the estimated incidence of cancer cases increased from 1.91 million in 2021 to 1.96 million in 2023 in the United States, an increase of more than 60 thousand cases in just two years. The data shows a rapid increase in the incidence of cancer cases in the country, and over the forecast period, the incidence of cancer is further expected to increase. Similarly, according to the Canadian Cancer Society (CCS) 2022 report published in November 2022, cancer is responsible for one of the highest healthcare burdens in Canada, and the incidence of cancer is increasing in the country. As per the CCS's 2022 report, about 233.9 thousand new cases of cancer were reported in 2022 in Canada, as compared to 229.2 thousand in 2021. This is likely to augment the adoption of fluorescence-guided surgery systems across healthcare settings in this region for cancer surgery, in turn driving the market growth in North America.

Moreover, as per the American Heart Association's report published in 2021, it is estimated that, by 2035, more than 130 million adults in the United States may have some heart disease. This is also expected to have a significant impact on the angiography procedures where fluorescence imaging has its application, which is expected to have a significant impact on the market studied.

Furthermore, the ongoing clinical trials in the country involving fluorescence-guided surgery (FGS) systems are expected to have a positive impact on the market's growth as these clinical trials evaluate the safety and effectiveness of FGS in hospital settings, and positive outcomes from these trials are further expected to advance the usage of FGS systems. For instance, in November 2021, a clinical trial was posted on the United States National Library of Medicine (ClinicalTrials.gov) site. The objective of the research study was to determine if 5-ALA can be effectively used in FGS for different types of head and neck cancers and if it will improve survival, tumor regrowth, and other outcomes for patients. The study was sponsored by Icahn School of Medicine at Mount Sinai in collaboration with NX Development Corp. Further, the trial's expected primary completion date is January 2024.

Therefore, owing to the above-mentioned factors, such as the rising prevalence of target diseases such as cancer and cardiovascular diseases, and the rising number of clinical trials, the market for fluorescence-guided surgery systems is expected to grow in North America.

Fluorescence Guided Surgery Systems Industry Overview

The market for fluorescence-guided surgery systems is moderately fragmented. The market is expected to be driven by the rise in initiatives from the key market players, which include the launch of new products, a rise in fundraising to launch novel products, an increase in grants to develop novel systems, and a rise in mergers and acquisitions. Some of the key market players in this market include Stryker Corporation, Hamamatsu Photonics K.K., Olympus Corporation (Quest Medical Imaging), Medtronic PLC, and OnLume Surgical, among others.

Additional Benefits:

  The market estimate (ME) sheet in Excel format
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