

Radiation Dose Management Market: Current Analysis and Forecast (2025-2033)

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Abstracts

Radiation dose management involves routine recording, assessment, and correction of radiation doses administered to patients undergoing imaging tests, including X-rays, CT, and nuclear medicine procedures. The prime goal is to protect patients against excessive dosage of radiation while maintaining the quality of diagnostic images. Technologically advanced software systems and tools are used to monitor accumulated dose exposure, remind technicians of dangerous exposures, and maintain compliance with regulations. Moreover, this approach helps clinicians to maintain practice standards, improve clinical processes, and utilize data to promote safer and more effective radiologic outcomes.

The Radiation Dose Management market is set to show a growth rate of about 13.36% during the forecast period (2025-2033F). The market for radiation dose management is growing due to frequent diagnostic imaging, increased awareness regarding patient safety, as well as strong regulations that necessitate radiation monitoring in radiological settings. The shift towards value-based care in the healthcare systems has brought greater focus on reducing the excess use of radiation and maximizing clinical outcomes. Progress in enhanced imaging equipment and greater health IT interoperability is fueling the market for radiation dose management solutions. Simultaneously, the greater awareness of radiation hazards among healthcare providers and patients, as well as the efforts of the international health authorities to introduce unified dose guidelines, is accelerating the global implementation of radiation dose management tools.

For instance, in April 2024, the IAEA announced that to help countries collect and analyse radiation exposure data and strengthen worker protection and safety, the IAEA has released a new state-of-the-art online “National Dose Registry system”. This new

software enables the collection of personal, employment, and dosimetric data for all occupationally exposed workers in a country, in support of national occupational radiation protection programmes. The IAEA states that all countries that do not have a central National Dose Registry in place, or who wish to optimize their current system, may benefit from this new online system.

Based on component category, the market is categorized into software and services. Among these, the software-based radiation dose management market holds the largest market share due to the widespread integration of dose tracking and analytics solutions to PACS and RIS systems in hospitals and diagnostic centers. Through functionalities such as real-time tracking, systematic reporting, and compliance verification, these software applications form an essential part of the current imaging operations. However, the services-based radiation dose management market is expected to show the fastest growth in the coming years, driven by increased demands for training, system integration, maintenance, and support services.

Based on modality category, the market is categorized into computed tomography, fluoroscopy and interventional imaging, radiography and mammography, nuclear medicine, and others. Among these, Computed Tomography (CT) currently holds the maximum market share in the radiation dose management market due to its widespread use in identifying a wide range of medical conditions such as trauma, cancer, and cardiovascular diseases. Repeated use of CT scans often requires more radiation exposure than other imaging procedures, highlighting the importance of dose management in this segment.

Based on application category, the market is segmented into oncology, cardiology, orthopaedics, and others. Out of these, the oncology segment currently holds the maximum market share in the radiation dose management market. This dominance is mainly due to great dependency on CT scans, X-ray images, and nuclear medicine in cancer management. Pre-repetitive imaging in oncology maximizes the risk of excessive radiation and bolsters the need for exposure management to protect the well-being of patients. However, the Cardiology segment is expected to be the fastest-growing in the future. As the number of cardiovascular diseases increases and imaging practices, including fluoroscopy, CT angiography, and interventional procedures, become common, cardiology becomes an indispensable application in radiation dose management.

Based on end-user, the market is segmented into hospitals, ambulatory care centers, and others. Out of these, the hospitals segment holds the maximum market share in the radiation dose management market. Most sophisticated diagnostic imaging, including CT scans, X-rays, and nuclear medicine, is performed in hospitals, monitoring various health problems, leading to its dominance in the market. However, the fastest growth is expected to be in the ambulatory care centers. These centers are adopting sophisticated imaging systems to address a growing need for outpatient care, with services meeting both effectiveness and cost needs, leading to their growth.

For a better understanding of the adoption of radiation dose management, the market is analyzed based on its worldwide adoption in countries such as North America (U.S., Canada, and the Rest of North America), Europe (Germany, U.K., France, Spain, Italy, Rest of Europe), Asia-Pacific (China, Japan, India, Rest of Asia-Pacific), and Rest of World. Among these, the North America region holds the largest market share due to its well-established healthcare infrastructure, high adoption of advanced diagnostic imaging technologies, and strict radiation safety regulations. However, the Asia-Pacific region is expected to be the fastest-growing region, due to the rapid increase in healthcare infrastructure, growing risk awareness, and rising expenditure on diagnostic imaging equipment.

Some major players running in the market include GE HealthCare Technologies Inc., Medsquare, PACSHealth, LLC, Siemens Healthineers, Novarad Corporation, Sectra AB, Imalogix, INFINITT Healthcare Co., Ltd., Bayer AG, and Philips International B.V.

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