

Ten Years of Excellence in the Logistical Management of Safe and Secure Transport of Radioactive Materials in Brazil: The Experience of Medical ALD.

Over the past decade, Medical ALD (Medical Storage, Logistics and Distribution Ltda.) has consolidated an innovative logistical management model in Brazil, becoming a reference in the distribution of radiopharmaceuticals, sealed sources, and calibration standards. This paper presents the company's 10-year experience, highlighting strategies in operations, infrastructure, compliance, and innovation, aligned with IAEA regulations (SSR-6) for the safe transport of radioactive materials and related guides.

Since 2015, Medical ALD has been building a robust operation, supported by a multidisciplinary team of approximately 90 professionals, including physicists, pharmacists, logistics specialists and drivers. The company holds ISO 9001:2015 certification, adopts ESG practices, and follows TRAM best practices recognized by CNEN (Brazilian Nuclear Competent Authority), ensuring excellence and regulatory compliance across all processes. Its fleet consists of 50 certified vehicles, covering more than 220,000 km per month to serve 39% of the Brazilian nuclear medicine market, which includes approximately 500 clinics. Over the course of a decade, the company has performed more than 210,000 transport operations dedicated to clinics, ensuring the timely delivery of radiopharmaceuticals and contributing to the continuity of clinical services throughout the country, and was awarded an honorable mention in the 2024 "Highlight Award" of the Brazilian National Land Transport Agency (ANTT). Due to Brazil's vast continental size, the air transport of radiopharmaceuticals is a necessity. With this in mind, Medical has adopted an innovative and unprecedented strategy in the country. One of Medical ALD's key strategic differentiators is its exclusive franchise with a national airline, ensuring virtually zero denials or delays in the acceptance of radioactive shipments. This innovative mechanism guarantees reliable distribution of short half-life radiopharmaceuticals such as technetium-99m generators and fluorodeoxyglucose (FDG), securing uninterrupted access to essential therapies and diagnostics. The company also holds licensing and authorization for international logistics, covering MERCOSUL countries, which provides strategic alternatives for supply continuity during crises or restrictions in domestic radiopharmaceutical availability. All of these transports are carried out in compliance with the regulations of the competent air transport authority, whose national regulations reflect the ICAO and IATA publications. In terms of radiation protection, more than 64 trained drivers operate under strict protocols, with an annual average effective dose of 2.8 mSv/year, reflecting the company's commitment to occupational health and compliance with international radiation safety standards. Medical ALD also promotes continuous training, capacity building, and professional development, cultivating a strong and sustainable safety culture. The involvement of young professionals and gender diversity further align the company with the IAEA's objectives on workforce development and inclusion. The transport operations integrate the interface between safety and security, with complete traceability, secure communication channels, and contingency planning for emergencies, thereby minimizing both accidental and malicious risks. This integrated approach strengthens confidence among competent authorities, healthcare institutions, and end-users. Currently, the company faces strategic challenges related to the international logistics of theranostic radiopharmaceuticals, the management of the radioisotope supply chain, and the provision of standards sources for nuclear medicine, which drive continuous innovation and operational planning to maintain excellence in an increasingly complex global regulatory environment. The outcomes of this consolidated experience demonstrate that a structured, long-term logistics management model for the transport of radioactive materials can reduce systemic vulnerabilities, ensure timely access to nuclear medicine services, strengthen national capabilities, and serve as a replicable model for other Member States. The combination of regulatory compliance, infrastructure investment, strategic airline franchise, workforce training, and the integration of safety and security constitutes an efficient model, balancing protection, reliability, and innovation. In conclusion, Medical ALD's ten years of operation demonstrate that a private operator can make a significant contribution to safety, security, and efficiency in the transport of radioactive materials.

Country or International Organization

Instructions

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