

# The Life Cycle of Medical Cyclotrons in the Kingdom of Saudi Arabia

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Abstract:

Medical cyclotrons have become a crucial component in the healthcare industry, particularly in the field of nuclear medicine. The Kingdom of Saudi Arabia (KSA) has seen significant advancements in the development of the cyclotron facility in the medical sector in recent years. This review paper provides an overview of the life cycle of medical cyclotrons in the KSA, highlighting the various stages from conception to operation.

The KSA has made significant investments in the development of medical cyclotron facilities, with several hospitals and research centers having established their own facilities. These facilities have enabled the local production of radiopharmaceuticals, reducing the reliance on imported products and enhancing the quality of patient care.

This presentation discusses the life cycle of a medical cyclotron, which starts with the planning phase, where a feasibility study is conducted to evaluate the potential demand for the facility. The second phase involves the design and construction of the cyclotron facility, including the installation of the cyclotron, target assembly, and supporting equipment. The third phase is the commissioning of the facility, which involves the testing and validation of the equipment and processes.

The fourth phase is the operational phase, where the facility is used for producing radioactive isotopes for medical applications. The final phase is the decommissioning of the facility, which involves the safe disposal of the equipment and the restoration of the site to its original state.

Overall, my talk will provide valuable insights into the life cycle of medical cyclotrons in the KSA and highlight the importance of these facilities in enhancing the quality of patient care. The increasing demand for radiopharmaceuticals makes the development of medical cyclotron facilities a critical priority for the healthcare industry in the KSA.