

## **SOCIOECONOMIC IMPACT OF CYCLOTRONS IN KING FAISAL SPECIALIST HOSPITALS & RESEARCH CENTRE IN SAUDI ARABIA**

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Cyclotron and Radiopharmaceuticals Department (C&RD) is a state-of-the art facility for two primary activities: Radiopharmaceuticals production and Precision Radiopharmaceuticals research. Since late 1970s, the mission of C&RD is to provide diagnostic and therapeutic radiopharmaceutical products that are manufactured by employing the highest quality standards, and to make the Kingdom of Saudi Arabia self-sufficient in all its radiopharmaceutical requirements. At the C&RD facility, three cyclotrons (particle accelerators) are dedicated to producing several essential radioisotopes, which are transformed into radiopharmaceuticals, and subsequently qualified as suitable for human use through rigorous testing and quality assurance. Radiopharmaceuticals manufacturing program is not only quite unique even for a major medical center, but also an essential component of King Faisal Specialist Hospital & Research Centre (KFSH&RC) in providing the specialty services and quality patient care for the population of the Kingdom. On-demand and reliable availability of radiopharmaceuticals are essential components of viable nuclear medicine practice. C&RD manufactures a wide range of radiopharmaceuticals used in diagnostic medical imaging, as well as for radiotherapy.

Over 30 high quality products are manufactured in state-of-the-art cleanroom facilities and supplied to more than 50 nuclear medicine centers throughout the Kingdom. To-date, well over 600,000 patient doses of radiopharmaceuticals have been supplied for clinical investigations throughout the Kingdom and abroad. Products are manufactured according to the international and Saudi Food and Drug Authority (SFDA) standards of Good Manufacturing Practices (GMP), as well as in adherence to the ISO 9001 Quality Management System (QMS). Research activities of the C&RD are focused on developing new radioisotopes and radioactive molecular probes with potential usefulness as precision radiopharmaceuticals for imaging and therapy. The facility comprises of appropriate equipment, including a micro-PET/CT for *in vivo* studies of the new radiotracers for achieving translational research from bench to bed-side. C&RD's multi-disciplinary staff is a blend of engineers, chemists, radiochemists, radiopharmacists, and quality control chemists all working toward KFSH&RC's goal of providing the specialty services in patient care. The Department is committed to the policy of *Quality in Performance and Pride in Achievement*. Our commitment to future growth is amply supported by R&D activities ensuring continuous influx of new technology and products, and also continuous quality improvements. Furthermore, our scientists are sharing with upcoming new cyclotron/PET facilities worldwide their vast experience and expertise, in form of valuable advice and consultations in manufacturing radiopharmaceuticals. Finally, these efforts have resulted in delivering precision medicine, reducing dependency on imported sources, generating quality job opportunities for qualified Saudi youth and generating considerable revenue and financial self-sustainability.