Affordable Healthcare

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Panoramic Photo of RMRC, Kolkata

Radiation Medicine Research Centre at Kolkata

A brief narrative of newly started centre of BARC

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Radiation Medicine Research Centre (RMRC), a state-of-the-art Nuclear Medicine Facility has been established at Kolkata under BARC. This Facility is setup and commissioned by RMC, BARC, Mumbai, with an aim to provide affordable state-of-the-art diagnostic and therapeutic Nuclear Medicine services to patients of Eastern and North Eastern states of India. In addition, this facility will provide teaching & training for medical and science post-graduates to produce Nuclear Medicine professionals and will also carry out research and development work in Clinical Nuclear Medicine, Nuclear Medicine imaging technology and in development of diagnostic & therapeutic radiopharmaceuticals.

Introduction

The Radiation Medicine Center (RMC), Mumbai was started on September 3, 1963 by Dr. Homi Jehangir Bhabha with objectives to provide Nuclear Medicine services and start research in Nuclear Medicine using radioisotopes to make the country self-reliant in the field of Nuclear Medicine diagnosis and therapeutic applications for welfare of mankind. RMC started initially with few instruments donated by Nobel Laureate Ernest Lawrance and expanded to a full-fledged NM facility.

In continuation with the same noble vision to provide low-cost affordable Nuclear Medicine services, Dr. Sekhar Basu, former Chairman, AEC incepted the dream of establishing an advanced Nuclear Medicine facility in Kolkata in eastern zone of India. The RMRC project was formulated and sanctioned under MTA in 2016 (OM No.3/1/2016/BARC/R&D-I/3519 dated 14.03.2016; XII-N-R&D-068). RMRC work started in new DAE campus at Rajarhat in August, 2017 and achieved various milestones during development stage (Fig.1) and the facility was commissioned to start patient services since Jan 3, 2024.

Activities at RMRC

RMRC is aimed to provide services for more than 10000 new patients annually and more than 25000 patients for follow ups which includes: Diagnostic services using imaging modalities for PET/SPECT scans, radionuclide therapy & Thyroid disorders management. Currently, these services are available at the centers where necessary clinical services are provided to the patients.

Diagnostic & Therapeutic Services: RMRC will offer Nuclear Medicine diagnostic services on PET/CT, SPECT/CT & SPECT systems using various radioisotopes like ^{99m}Tc, ^{18}F, ^{68}Ga etc. Total four imaging systems (SPECT- 2 Nos, PET/CT-1 No and SPECT/CT-1 No.) have been procured, installed and commissioned at RMRC in first phase for this purpose. The Centre will also offer therapeutic services utilizing various radioisotopes like ^{131}I, ^{177}Lu, ^{90}Y, ^{153}Sm, ^{225}Ac etc. A dedicated radionuclide therapy ward is established with 25 nos. beds for this purpose.

Hospital Radiopharmacy: A clean room facility is developed as radiopharmaceutical (RP) laboratory for preparation of various diagnostic and therapeutic radiopharmaceuticals used in the Centre. The clean room of class 10000 and class

Clockwise from top: Patients undergoing OPD services at RMRC, SPECT 830 unit in routine operations, Group photograph of DAE officials.

Fig.1: Project Milestones.

100000 has been established. RP lab will be mainly involved in labelling of ^{99}mTc, ^{68}Ga, ^{177}Lu, ^{90}Y, ^{225}Ac with pharmceuticals and to carry out Bio QC before adminisetering to patients.

Engineering Services: RMRC is a standalone facility and therefore various support services are necessary for operation and maintenance of infrastructure development. All engineering services (Mechanical, Electrical, Civil and I&C system) and associated systems like delay tank facility & Clean room etc. have been established. Major systems installed at campus are main power supply system, HVAC system, Fire protection system, I&C systems etc.

Health Physics Unit: RMRC has a radiation hazard unit to provide radiation surveillance and required radiation safety support to the facility. HPU also supports in radiation management system and routine radiation surveillance.

Research and Development Work: Research and training activities will be initiated in the Centre after diagnostic and therapeutic service are established. The research activities are in the field of Nuclear Medicine imaging and development of diagnostic & therapeutic radiopharmaceuticals. Other major research area will include clinical translation of radiopharmaceuticals, thyroid cancer & thyroid disorder-metabolomics, diagnosis (cell free), mutation studies and personalized treatment, Anti-cancer drug and nanobodies development, development of radionuclide therapy protocols in association with cancer research institutes & hospitals.

The Centre will provide teaching/training for medical and science graduates in Nuclear Medicine. The training courses are MD (NM), Msc (NMMIT, HRP), RSO etc.