GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY

RAJYA SABHA
UNSTARRED QUESTION NO. 2246
ANSWERED ON 20/03/2025

DAE INITIATIVES REGARDING CANCER TREATMENT

2246. DR. K. LAXMAN

will the PRIME MINISTER be pleased to state:-

(a) the manner in which Department of Atomic Energy (DAE) is supporting the commercialization and supply of radiopharmaceuticals for affordable cancer care in India ;

(b) the manner in which DAE contributed to National Cancer Grid (NCG) and how it has contributed to cancer care in India, and its impact on the country's total cancer load; and

(c) the details of the key advancements in cancer treatment and diagnostics introduced at Homi Bhabha Cancer Hospital and Research Centre (HBCH & RC) Punjab, and the way they enhance patient care?

ANSWER

THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES AND PENSIONS AND IN THE PMO (DR. JITENDRA SINGH)

(a) DAE has developed and launched several radio-pharma products. BARC has been continuously working towards ensuring uninterrupted supply of radioisotopes and radiopharmaceuticals in the country through its research reactors. BARC is constantly carrying out research to develop new radiopharmaceuticals for cancer care and achieved indigenization of clinically established radiopharmaceuticals and allied products at an affordable cost. A list of radiopharmaceuticals indigenously developed are given below. These radio pharma products are available on demand through Board of Radiation and Isotope Technology (BRIT).

List of indigenously developed radio-pharmaceuticals		
Sr. no.	Product description	Use/ Applications
1.	^{90}Y-labeled hydroxyapatite (HA)	Radiation synovectomy
2.	^{177}Lu-labeled hydroxyapatite (HA)	Radiation synovectomy
3.	^{177}Lu-DOTA TATE	Therapy of neuroendocrine tumors
4.	^{177}Lu-DOTA-TRASTUZUMAB	Breast cancer expressing HER-2 receptors
5.	Clinical grade NCA Radiochemical copper-64 chloride ($^{64}CuCl_2$)	PET imaging of cancer/ radiochemical for ^{64}Cu-RPh preparation
6.	^{177}Lu-DOTMP	Bone pain palliation
7.	^{90}Y-GLASS MICROSPHERES	Liver cancer therapy
8.	^{188}ReN-DEDC/Lipiodol (improved method)	Liver cancer therapy
9.	^{177}Lu-CHX-A"-DTPA-Rituximab	Therapy of non-Hodgkin's lymphoma
10.	Copper-64 chloride ($^{64}CuCl_2$)	PET imaging of cancer
11.	^{99m}Tc-HYNIC-[cycle(RGDfk)]$_2$	Imaging of malignant tumor
12.	^{188}ReN-DEDC/Lipiodol	Liver cancer therapy
13.	^{99m}Tc-HYNIC-TATE	Imaging neuroendocrine tumors
14.	^{188}Re-HEDP	Bone pain palliation
15.	^{131}I-lipiodol	Liver cancer therapy
16.	^{68}Ga-PSMA-11	Imaging of prostate cancer
17.	^{99m}Tc-UBI (29-41)	Infection imaging
18.	^{68}Ga-DOTA TATE	Imaging neuroendocrine tumors

(b) The National Cancer Grid was established with support from the Department of Atomic Energy (DAE). The DAE provided Rs 72 Crores for all the activities of NCG from 2013-2023. Subsequently, to expand the scope of several projects under the NCG, DAE has further granted Rs 177.05 Crores for next 5 years.

NCG has worked towards uniform standards of cancer care, developing trained workforce in oncology and supporting high-quality multi-centric cancer research to develop cost-effective solutions for prevention and treatment of cancer. Through its several initiatives, NCG is striving for delivery of uniform cancer care to all irrespective

of their geographical location or socioeconomic status. There are 362-member organizations in the NCG. In the last two years a total of 70 cancer centres have been added to the NCG. Between these centres, a total of 800,000 new cancer cases are treated annually. Initiative of the NCG has potential of massive and far-reaching impact

The key initiatives undertaken by NCG to improve cancer diagnosis, treatment protocols and research in India

1. Resource stratified guidelines for management of cancers based on the cost-effectiveness and infrastructure availability.
2. The guidelines are linked with AB-PMJAY to ensure quality of care delivery to the AB-PMJAY beneficiaries.
3. Capacity building to conduct health technology assessment to ensure that oncology packages and treatments promote value-based care.
4. Group negotiation for all the high-value anticancer drugs which resulted in a median of 82% price reduction leading to improvement in access and affordability
5. Standardization of diagnosis by NCG-surgical pathology quality assurance program which helps ensure correct diagnosis at all the participating centres.
6. Quality improvement programs which train the centre in improving the quality of all the cancer care pathways.
7. Training of health-care professionals including nurses, pathologists and technicians from across the country to deliver high quality cancer care.
8. Virtual tumour boards to provide inputs on diagnosis and treatment from a multidisciplinary team of cancer experts for all the complex cancer cases at any of the cancer centers at any location.
9. Development of interoperable oncology specific electronic medical record solution
10. Establishment of Koita Centre of digital oncology to leverage digital technologies to improve cancer care from prevention to treatment. This is in complete alignment with Ayushman Bharat Digital Mission.
11. Integrated data collection & aggregation – a “National Cancer Database to guide all the cancer policies and national cancer control plan. Initial databases established for five common cancers.
12. Partnering with digital tech companies to deliver cancer care near to patients’ home

13. Initiation of national tumor tissue biobank across NCG to understand the cancer causation, identification and development of new anticancer treatment and preventive technologies.
14. Optimization of treatment of childhood acute lymphoblastic leukemia to increase cure rates - the largest trial done till date anywhere in the world
15. Repurposing of drugs (aspirin, metformin and curcumin) to provide cost-effective treatment options for common cancers
16. Training the early career oncologists in conducting high-quality cancer research. Till date more than 400 oncologists have been trained
17. Setting a priority agenda for cancer research and collaborating with ICMR (with joint matched funding) to fund the country-relevant research questions. These include the following

- Reduce burden of patients presenting with advanced disease
- Improve access, affordability and outcomes in cancer care via solution-oriented research
- Country-level health economic assessment of cancer interventions and technologies
- Quality improvement and implementation research
- Leverage technology to improve cancer control supported by robust scientific evidence

(c) Homi Bhabha Cancer Hospital & Research Centre, Punjab is a unit of Tata Memorial Centre, Mumbai, working under the aegis of Department of Atomic Energy, Government of India. It has 2 centres, Homi Bhabha Cancer Hospital, Sangrur was set up in 2015 and Homi Bhabha Cancer Hospital & Research Centre, New Chandigarh has been set up in 50 acres of land and is functional since August, 2022. HBCH&RC, New Chandigarh is a 300 bedded facility and HBCH, Sangrur is 150 bedded facility.

Hospital is providing round the clock Emergency, IPD, ICU, laboratory, Blood bank and pharmacy services. The hospital is fully functional and is providing all types of cancer care services including Medical Oncology (including chemotherapy in daycare), Surgical Oncology, Radiation Oncology, Pediatric Oncology, Preventive oncology, Palliative Oncology, Oncopathology,

Microbiology, Imaging services, Interventional Radiology, Nuclear Medicine, Blood bank and Bone marrow transplant services. The laboratories and diagnostic departments are equipped with high end machineries and equipments including 3 Tesla MRI, CT scan, DEXA scanner, Mammography machine, Fluoroscopy machine, PET scanner, SPECT etc. which helps in early diagnosis of cancer. Advanced machines like LINAC are available to extend treatment with precision targeting only the cancerous area, ensuring the neighbouring normal soft tissue is not affected or damaged; through procedures like 3D CRT, IMRT, IGRT, IGBT, Stereotactic Body Radiotherapy (SBRT) and Stereotactic Radiosurgery (SRS). The Modular OTs with advanced machinery ensures delivery of world class treatment to its patients including HIPEC and PIPAC surgeries etc.

The hospital has registered more than 18,000 new cancer patients in the year 2024. Out of these, approx.13,000 patients were from Punjab while others hailed from the adjoining states of Haryana, Uttarakhand, Rajasthan, Himachal Pradesh, Uttar Pradesh and the union territories of Jammu & Kashmir, Ladakh and Chandigarh. In year 2024, OPD footfall was approx. 1.5 lakhs, approx. 6000 surgeries were done, more than 40,000 chemotherapies were administered, approximately 52,000 radiological investigations were done, 2300 patients were attended in Nuclear medicine and more than 5 lakhs investigations were carried out.

Cancer prevention and early diagnosis is an important mandate of public health department of the hospital for which multiple public health programs are being run like Early Detection Program (EDP), ISHA project (Indian Study of Healthy Aging) for detecting cancer in women where more than 1.5 lakh women have been screened cancer; population-based cancer registries (PBCR) and hospital-based cancer registries (HBCR).

HBCH&RC, Punjab is focused in providing world class services for cancer prevention, diagnosis and treatment.

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