State of Palestinian
Ministry of Health
International Cooperation & Projects Dir.

دولـــة فلـــــسطين
وزارة الصحة
الإدارة العامة للتعاون الدولي والمشاريع

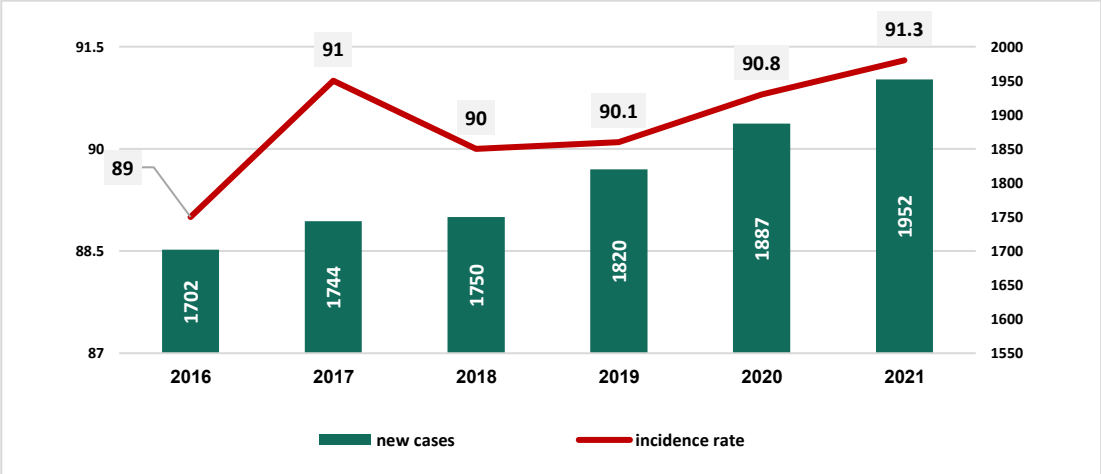
وزارة الصحة الفلسطينية
Ministry of Health

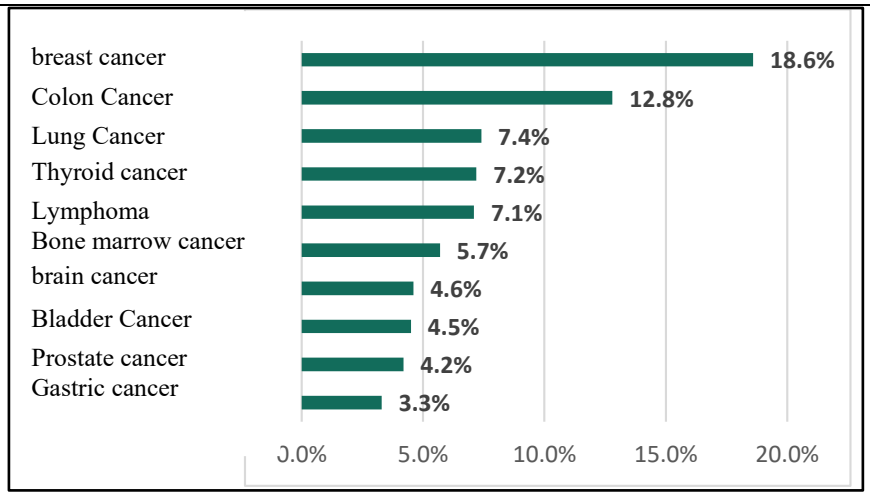
PROJECT PROPOSAL

Establishing a radiotherapy building at the Gaza Cancer Center

Project proposal

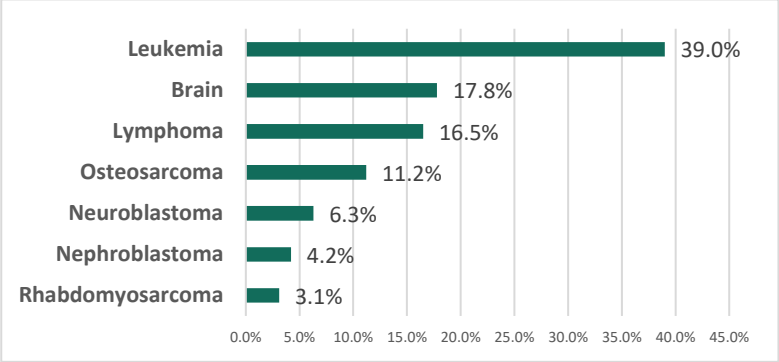
Project request number (Special for ICD)	00/2022					Date:	15/12/2022
Project name	Establishing a radiotherapy building at the Gaza Cancer Center.					Applicant for the project	Ministry of Health
Project duration in months	Two years after donation			Type of project		■ Within the plan ☐ Urgent	
Project field	■	Construction	☐	Rehabilitation	■	Machines & Equipment	■ Therapeutic Services
	☐	Consumables	■	Training and Scholarship	☐	Operational Expenses	■ Others (……)
Implementation body	Ministry of Health					Partners	
Beneficiaries	Oncology patients who need radiotherapy services.					Place of implementation	Gaza Cancer Center (GCC)
Estimated budget (USD)	**7,570,000 USD (seven million five hundred seventy thousand US dollars)**.						
Summary of project	The idea of the project is establishing a radiotherapy building in the Gaza Cancer Center, which includes the Turkish Friendship Hospital and other buildings. The project will be based on construction and equipment phases which includes the equipping phase radiotherapy machine and its required accessories for service operations as quality control items and simulators. There is also a need for trained medical staff to manage radiotherapy services, as There are around 15 medical doctors who have finished their radiological residency in the Gaza Strip, but none have had specialist training outside and hence they do not have extensive experience in Management radiotherapy. Technicians would also require training to ensure capacity for a radiation facility. This project aims to develop and improve the quality of health services provided to cancer patients in order to save their lives from death. Palestinian cancer patients have no access to radiotherapy (RT) treatment within the Gaza Strip. The Ministry of Health affords the cost of treatment abroad for cancer patients, as the number of referrals for treatment abroad has reached 7,000 cases annually, with a cost of more than 13 million dollars. In addition to the suffering of patients and their families from traveling for treatment abroad. Despite the prevalence of cancer in the Gaza Strip, oncology services are still limited. The Ministry of Health in Gaza seeks to develop and improve the diagnostic and therapeutic services provided to cancer patients in the Gaza Strip by unifying the oncology service in the Gaza cancer center (GCC), because has several advantages to be a center of excellence providing comprehensive						

	cancer services to the population of the Gaza Strip to provide an integrated service that greatly alleviates the suffering of patients. The use of new radiotherapy techniques would reduce pain and the complications from cancer, prolongs life and in some instances offers a cure to patients with cancer and reduce toxicity to normal tissues like; IMRT, VMAT, and IGRT. To complement this project, the Ministry of Health, and international experts, a 5-year operational plan will delineate immediate steps to organize cancer services and programmers, leveraging the capacities of existing centers and strengthening integration and coordination. This operational plan will ensure better strategic coordination and efficient use of internal and external investments based on current and planned resources. Therefore, this project came to meet the radiotherapy needs of cancer patients in the Gaza cancer center at an estimated cost of seven million five hundred seventy thousand USD.
Interdiction of project	Cancer is one of the most important health problems faced by countries and people of many countries. Where cancer is one of the most important causes of morbidity and mortality in the world. In the year 2021, the rate of cancer deaths in the Gaza Strip reached 10.8% of all deaths. During the year 2021, 1952 new cases of cancer were registered from various sources and in the last five years, cancer registered an increase in the incidence rate among the population of the Gaza Strip. In 2016, the incidence rate was 89/100,000 of the population, and it increased to 91.3 in 2021. The chart below shows the incidence of cancer per 100,000 population (2016-2021). **(Annual Report on cancer in the Gaza Strip, 2021).**  In Gaza Strip, breast cancer and colorectal cancer are the two most common cancer diseases. During the year 2021, the number of new breast cancer cases reached 363, which represents 18.6% of the total cancer cases. Colon cancer comes in second place, as 249 new colon cancer cases were registered in 2021, which represents 12.8% of the total cases. Colon cancer is the most prevalent type among males, as 130 new cases of colon cancer were registered in 2021, or 14.5% of the total types of cancer affecting males. Lung cancer is the second type in terms of prevalence, as 101 cases of lung cancer were detected, or 11.3% of the total number of male cases. **The chart below shows the incidence of the most common types of cancer in both gender (Annual Report on cancer in the Gaza Strip, 2021).**



In the year 2021, the number of cancer cases in children under the age of 18 reached 125 new cases, which represents 6.4% of the total registered cases. Bone marrow cancer (leukemia) is the most common type of cancer in children and accounts for nearly half of all childhood tumors.

The chart below shows the incidence of the most common types of cancer among children



The main target groups of patients in need of Radiation Therapy in Gaza will be patients with a cancer diagnosis suitable for radiation therapy, either in combination with chemotherapy, or as single—mode therapy for curative and/or palliative care.

Compared with the RT-situation for cancer patients in neighboring countries, the situation is unacceptable, increasing avoidable deaths. This adds to the unnecessary separation from patients' families and social networks and thus the important psychosocial support cancer patients so much need. Local research found medical treatment and social support to be key factors that affect the quality of life among children in Gaza with cancer.

The Ministry of Health is the main and sole provider of cancer services in the Gaza Strip and it seeks to develop and improve the diagnostic and therapeutic services provided to cancer patients in the Gaza Strip by unifying the oncology service in the Gaza Cancer Center (GCC), because has several advantages to be a center of excellence providing comprehensive cancer services to the population of the Gaza Strip including radiotherapy:

- Availability of a space suitable to accommodate a radiotherapy machine and related services.
- Beds capacity: 180 inpatient beds.

	- Availability of all necessary furniture, goods, and supplies. - Well-developed laboratory infrastructure that supports the radiotherapy service. - Availability of advanced diagnostic equipment such as CT, MRI in addition to mammography and x-ray machines. - Easy-to-access location of the hospital (Middle Zone). Currently the out-patient services are opened and functioning, seeing cancer patients daily from the southern parts of Gaza. Currently there are an average of 105 daily cancer outpatients seen, and 15-20 cancer in-patients in the Gaza Cancer Center. The hospital structure can accommodate a new radiotherapy unit with adjacent planning CT, provided the necessary construction of rooms is funded and completed with the relevant quality of radiation-protection. Plans for the needed constructions are already outlined. Radiation therapy' (RT) is the use of high-energy particles or waves to destroy or damage cancer cells. External radiation is delivered using special equipment (RTM) that sends high doses of radiation to the cancer cells or tumors. Radiation can also affect healthy cells, however, normal cells can repair themselves, while cancer cells cannot. Radiation therapy can take place on its own, or it is frequently combined with chemotherapy. Radiotherapy is part of the recommended, evidence-based treatment for a variety of cancer diseases. Breast cancer, prostate cancer, head and neck, lung and skin cancer are some of the cancers typically treated with radiation therapy.
Project justifications	❖ Increase the number of cancer patients in the Gaza Strip. ❖ An increase in the number of referrals for treatment abroad for cancer patients due to the shortage of drugs and specialized services. ❖ Increase the high financial costs incurred by the Ministry of Health as a result of the increase in referrals for cancer patients for treatment abroad. ❖ The suffering of cancer patients and their families from the burdens of traveling abroad to receive radiotherapy service. ❖ Cancer patients are exposed to serious complications that may lead to death as a result of not receiving the service on the time.
Project objectives	**Overall goal:** ✓ Contribute to developing and improving the quality of health services provided to cancer patients in the Gaza Strip. **Specific objectives:** ❖ Strengthening Radiation Treatment for Cancer Patients in the Gaza Strip. ❖ Decrease the health cost for cancer care by reducing referral abroad of cancer cases for radiotherapy about 95 %. ❖ Enhance the accessibility & affordability for cancer care services in the Gaza Strip. ❖ Alleviate the suffering of travel for cancer patients and their families in the Gaza Strip.

Project's current Indicators	❖ The rate for Cancer cases that referral abroad for radiotherapy are 130 patients monthly. ❖ Total monthly newly discovered cases that need for radiotherapy services are 80 cases. ❖ 50- 60% of cancer patients can't receive radiotherapy on the time related to inaccessibility and can't travel outside. ❖ Delay of receiving radiotherapy caused 20- 30% of cancer deaths. ❖ Increase cancer mortality rate for cases that need urgent radiotherapy about 90 % in brain cancer metastatic patients and about 80 % in spinal cord tumors compression as a life saving treatment. ❖ Providing medical staff with skills and knowledge in radiotherapy management
Expected results	❖ Reduce mortality & morbidity of general types of cancer patients about 5%-6% ❖ Reduce mortality & morbidity of breast cancer metastatic patients about 30%. ❖ Reduce mortality & morbidity of brain and spinal cord metastasis by about 40%. ❖ Reduce the average of referral abroad for cancer radiotherapy to zero level annually.
Success factors of project	Gaza Cancer Center has several advantages to provide an integrated service that greatly alleviates the suffering of cancer patients, as follows: 1. There are 180 inpatients beds available in the hospital, which provides the necessary need for inpatients, day treatment, chemotherapy, and some surgical & medical services for cancer patients. 2. Availability of laboratory infrastructure that support the radiotherapy service. 3. Availability of C.T and MRI as diagnostic devices that support the radiotherapy service.
Schedule of the main project implementation phases	

Stage	Duration in months											
	2	4	6	8	10	12	14	16	18	20	22	24
Preparation												
Implementation												
Evaluation and closure												

Estimated budget items in USD	

#	Item	Price ($)
1.	Operational Planning – 5 Year Operational Plan	30,000
2.	Linear Accelerator (LINAC)	2,000,000
3.	CT Simulator	600,000
4.	Treatment Planning System (TPS)	600,000
5.	Integral Dosimetry System	500,000
6.	Patient Immobilization tool and Online UPS	400,000
7.	Oncology information System (OIS)	2,00,000
8.	Construction of Radiotherapy Building: including bunkers and other facilities (Two L\A Bunker (+) BT Bunker.	1,000,000
9.	Collaboration with AVH & International Training Programme	200,000
10.	Human Resource and Staff for 24 months	420,000
11.	Operational costs	300,000
12.	International Program Officer	300,000
13.	Maintenance of equipment	500,000
14.	Medical waste	150,000
15.	Emergency Contingency	500,000
16.	Maintenance and upgrade	70,000
	TOTAL	**7,570,000**

Sustainability of the project

- The Ministry of Health provides a medical staff with experience in the field radiological and are ready to receive training in the management of radiotherapy services, and then train other medical staff in this field.
- The Ministry of Health provides qualified technical staff to carry out the periodic maintenance of medical devices.
- Formalized partnerships at the local, national, and international levels can allow the cancer center to work with external organizations to resolve unmet patient needs and advocate for patient services and support that are outside the scope of the cancer center, or best delivered in the community.

Project monitoring & evaluation

- Reports on the price offer and the bidding according to the schedules, quantities and specifications required to establish a new building for radiotherapy service.
- Follow up the periodic and final reports of the project.
- Report on the impact of project implementation on relevant indicators before implementation.

Annexes

Detailed specifications & drawings of building will be provided upon approval of funding.

Preparation & Supervision	**Project designer:** **Dr. Taghreed Elghouti**		**Director of projects preparation department:**	
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