

Chapter 19

General Oncology Care in the UAE



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19.1 Demographics

Located in the Southeast of the Arabian Peninsula, The United Arab Emirates (UAE) is a member of the Gulf Cooperation Council (GCC) in the Arab world. Established in 1971, the UAE is a comparably young country yet with abundant development potential. The UAE has a well-established distinct presence at the regional and international stages. Seven Emirates constitute the UAE including, Dubai, Sharjah, Ajman, Fujairah, Ras-Al-Khaimah, Umm Al-Quwain, and the capital: Abu Dhabi. Over the past two decades, the UAE's population has surged at

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almost triple the rate (www.worldpopulationreview.com). The estimate of the current population is around 10 million. Most of the country's population consists of expatriates. Most of them are South Asians that make up 58% of expatriates in the UAE.

The UAE has the third and fifth largest conventional oil and natural gas reserves, respectively, in the world. In 2015, the Gross Domestic Product (GDP) per capita was ranked at 95th percentile, globally. This makes the UAE a famous destination for employment opportunities and hence, the country has a relatively young population and a median age of 30.3 years. Moreover, male/female ratio remains high reaching 2.2 and 2.75 for the 15–65 age groups [1].

19.2 Cancer Statistics in the UAE

In 2002, the first official cancer incidence report was published [2] and the regional GCC cancer registry incorporated this report [3]. The central cancer registry was launched by the Department of Health, Abu Dhabi in 2012. One Thousand seven hundred twenty-nine new cancer cases were reported in the first published comprehensive cancer incidence report in Abu Dhabi; of which, UAE citizens accounted for 28% and expatriates accounted for the remainder. Breast cancer in females and hematological malignancies in males were the most common cancers among them [4]. Although the Emirate of Dubai has various hospital-based tumor registries, the results of the combined tumor registry are yet to be released. A common tumor registry, established in 2014 by the government, has been shared by all private and public hospitals of the Northern Emirates. It is mandatory for these Emirates to register all cancer diagnosis in this registry [5]. An updated incidence report from the Department of Health in the Emirates of Abu Dhabi from 2016 is summarized in Table 19.1 [6].

Table 19.1 Cancer incidence in the Emirate of Abu Dhabi (2016) [6]

	Total	National	Expatriates
Breast	300	73	227
Thyroid gland	212	76	136
Colorectum	159	48	111
Leukemia	108	23	85
Prostate gland	86	28	58
Non-Hodgkin's lymphoma	80	19	61
Bronchus and lung	79	20	59
Uterus	59	16	43
Kidney and renal pelvis	57	15	42
Skin	50	6	44
Stomach	50	17	33
Liver	47	14	33

Table 19.1 (continued)

	Total	National	Expatriates
Cervix uteri	45	14	31
Brain and other CNS	41	12	29
Bladder	39	11	28
Pancreas	39	11	28
Hodgkin's lymphoma	34	16	18
Connective and soft tissue	27	5	22
Multiple myeloma	26	9	17
Unknown and ill-defined sites	24	11	13
Mouth	23	6	17
Ovary	23	6	17
Testis	23	1	22
Pharynx	22	4	18
Gall bladder and other unspecified parts of biliary tract	18	3	15
Larynx	17	4	13
Tongue	17	3	14
Bone and cartilage	12	1	11
Esophagus	10	2	8
Small intestine	7	3	4
Melanoma of skin	6	1	5
Retroperitoneum and peritoneum	6	1	5
Salivary gland	6		6
Parotid gland	5		5
Eye	4	1	3
Heart, mediastinum, and pleura (including mesothelioma)	3		3
Other and ill-defined digestive organs	3	2	1
Myelodysplastic syndrome	2	1	1
Other endocrine glands	2	1	1
Placenta	2	1	1
Vagina	2	1	1
Kaposi sarcoma	1		1
Lip	1		1
Nasal cavity, middle ear, accessory sinus	1	1	
Tonsil	1		1
Ureter	1		1

Source: Department of Health, Abu Dhabi, UAE

The UAE cabinet has established a comprehensive population-based registry, the UAE National Cancer Registry (UAE-NCR). This registry is used for collecting, storing, summarizing, and analysis of information on patients who are diagnosed and/or treated for cancer within the UAE. Data is consolidated from all relevant entities including Department of Health Registry Abu Dhabi, Dubai Health Authority Cancer Registry, Northern Emirates Registries, all public and private based hospitals record on malignancies that were certified by medical professionals,

pathology laboratories' reports, and mortality data. This data is utilized for guiding cancer care services plans, oncology research programs, future developments, and advancing screening programs. Annually, a report is published on the data collected on malignant neoplasms by this registry according to international standards.

The UAE-NCR's recent data (for the year January 1–December 31, 2017) [7] indicates a total of 4299 newly diagnosed cancer cases in the country. Malignant cancer accounted for 4123 (95.91%), while in situ cancer accounted for 176 (4.09%) cases. Out of the total newly diagnosed cancer cases (4299), just over a quarter 1160 (26.9%) were diagnosed among UAE citizens, while 3149 cases were diagnosed in non-UAE citizens. More females 2370 (55.1%) were affected than males 1929 (44.9%) and the overall crude incidence rate of cancer was 46.2/100,000 for both genders. According to the cancer mortality data, there were a total of 955 deaths from cancer (517 in males and 438 in females), which accounted for 10.82% of all deaths regardless of nationality, type of cancer, or gender.

Table 19.2 has illustrated the summary of demographics and most common cancer types among the UAE population from 2017 data [7]. By 2040, the number of new cancer cases is anticipated to increase in the UAE. This highlights the important role of government-established national cancer registries to meet the demand for this projected increase in cancer cases [9].

Table 19.2 Cancer Prevalence in the UAE (2017) stratified by site, gender, and citizenship status [8]

Primary site ICD-10	Non-UAE citizens			UAE citizens			Grand total
	Female	Male	Total	Female	Male	Total	
(C00-C96) All invasive cancers (malignant cases)	1570	1448	3018	680	425	1105	4123
C00-C14 Lip, oral cavity, and pharynx	24	96	120	15	16	31	151
C16 Esophagus	4	14	18	6	6	12	30
C16 Stomach	17	51	68	19	8	27	95
C17 Small intestine	6	12	18	3	1	4	22
C18-C21 Colorectal	108	197	305	58	59	117	422
C22 Liver and intrahepatic bile ducts	17	27	44	8	20	28	72
C23-C24 Gallbladder, other, and unspecified part of biliary tract	7	17	24	4	3	7	31
C25 Pancreas	15	30	45	11	13	24	69
C30, C31 Nasal cavity, middle ear, accessory sinuses	2	6	8	2	0	2	10
C32 Larynx	2	11	13	0	7	7	20
C34 Bronchus and lung	30	70	100	7	33	40	140
C40-C41 Bone and articular cartilage	7	12	19	5	2	7	26
C43 Skin melanoma	9	15	24	0	2	2	26
C44 Skin	55	119	174	19	15	34	208
C45 Mesothelioma	0	2	2	0	1	1	3
C45 Kaposi sarcoma	0	2	2	0	2	2	4
C48 Retroperitoneum and peritoneum	5	8	13	2	4	6	19

Table 19.2 (continued)

Primary site ICD-10	Non-UAE citizens			UAE citizens			Grand total
	Female	Male	Total	Female	Male	Total	
C49 Connective and soft tissue	17	29	46	4	8	12	58
C50 Breast	609	8	617	216	1	217	834
C53 Cervix uteri	66	0	66	16	0	16	82
C54-C55 Uterus	63	0	63	48	0	48	111
C56 Ovary	55	0	55	15	0	15	70
C61 Prostate	0	109	109	0	46	46	155
C62 Testis	0	35	35	0	8	8	43
C64-C65 Kidney and renal pelvis	21	40	61	8	15	23	84
C66, C68 Ureter and other urinary organs	0	6	6	0	1	1	7
C67 Urinary bladder	10	68	78	11	23	34	112
C63 Eye	0	2	2	2	0	2	4
C70-C72 Brain and CNS	23	44	67	5	4	9	76
C73 Thyroid	203	86	289	99	24	123	412
C74-C75 Other endocrine glands	3	5	8	1	1	2	10
C80 Unknown primary site	25	23	48	6	8	14	62
C81 Hodgkin's lymphoma	23	29	52	9	14	23	75
C82-C85, C96 Non-Hodgkin lymphoma	42	84	126	23	23	46	172
C88, C90 Multiple myeloma	10	25	35	4	11	15	50
C91-C95 Leukemia	71	152	223	47	44	91	314
Other malignancy	21	14	35	7	2	9	44
(D00-D09) Non-invasive cancers (in situ cases)	91	40	131	29	16	45	176
D00 Carcinoma in situ of oral cavity, esophagus, and stomach	0	1	1	0	0	0	1
D01 Carcinoma in situ of other and unspecified digestive organs	1	3	4	2	0	2	6
D02 Carcinoma in situ of middle ear and respiratory system	0	2	2	0	1	1	3
D03 Melanoma in situ	8	10	18	1	2	3	21
D04 Carcinoma in situ of skin	4	2	6	1	0	1	7
D05 Carcinoma in situ of breast	43	1	44	14	0	14	58
D06 Carcinoma in situ of cervix uteri	29	0	29	9	0	9	38
D07 Carcinoma in situ of other and unspecified genital organs	1	0	1	0	0	0	1
D09 Carcinoma in situ of other and unspecified sites	5	21	26	2	13	15	41
Grand total	1661	1488	3149	709	441	1150	4299

Source: Ministry of Health and Prevention, Statistics and Research Center, National Disease Registry—UAE National Cancer Registry Report 2017

19.3 Healthcare System in UAE

The UAE's healthcare system has been ranked 27th worldwide by the World Health Organization (WHO) due to its rapid growth and development [10]. Sincere efforts made by the government to provide full coverage for its citizens, along with mandating health insurance for expatriates along with their families. Moreover, direct payment to health care facilities by patients can be made to any service they receive. Finally, several charities are active in aiding UAE residents for expensive oncology treatments if diagnosed with cancer.

Within the UAE, there are several health governing organizations closely working together in harmony to ensure a smooth and well-being of the residents. The Ministry of Health and Prevention (MOHAP) is the prime federal regulatory health authority for the whole UAE healthcare system working closely with the Department of Health in Abu Dhabi, the Dubai Health Authority, and the Sharjah Health Authority.

Despite the relatively young average age within the UAE residents, cancer is the third leading cause of death in the UAE after accidents/injuries and cardiovascular disease. Data reported from the UAE capital, Emirates of Abu Dhabi shows that 16% of mortality is cancer related in the Emirates [11]. A national agenda by the UAE federal government has initiated plans to reduce the tally of cancer-related deaths [12].

19.4 UAE Oncology Care

The first published document of oncology care from the UAE dates back to 1981 addressing five cases of hepatocellular carcinoma [13]. The first and largest cancer care facility was established in one of Abu Dhabi's main cities, Al-Ain. Established in 1979, the first hospital to deliver comprehensive cancer care services in the UAE was Tawam Hospital. By 1983, Tawam Hospital was designated as UAE's cancer referral hospital [14]. In order to allow cancer patients to reach closer-to-home health care facilities, several general oncology care services began across the country. Until 2007, the entire oncology treatment cost was covered by the UAE government for all UAE citizens and residents living in the country. The UAE government continues to cover the cost of cancer treatment for all UAE citizens. While non-citizens, as previously mentioned, are covered by insurance plans. Sometimes, expatriates are forced to leave for their home countries to continue medical treatment due to insurance plans that are subject to expiration dates. This scenario has led to a recent collaborative publication from the prestigious Emirates Oncology Society (EOS), providing alternative solutions for adjustments in cancer insurance packages across the country [15].

Due to the involvement of high capital expenditure, oncology care in the private healthcare sector is uncommon. A very successful model has been shown in the

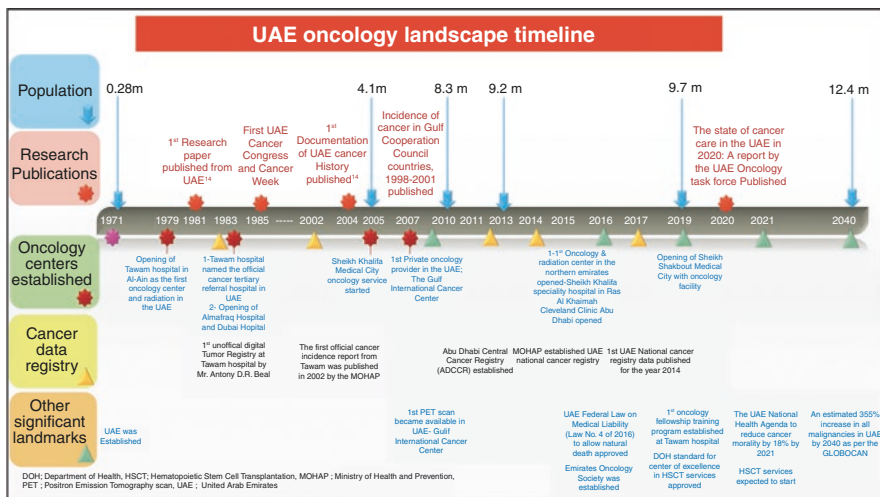


Fig. 19.1 Progress of oncology in the United Arab Emirates [15]. Used with permission from Gulf Journal of Oncology

UAE by integrating the public and private sectors for oncology services. Many hospitals and healthcare entities are now adapting to this model. Moreover, basic and comprehensive cancer care services are now available in private hospitals. Figure 19.1 shows the timeline summarizing the stages of oncology development in the UAE.

19.5 Cancer Risk Factors

There are several identified modifiable risk factors for cancers. For example, obesity is well known to be related to several types of cancer such as colorectal, esophageal, breast, etc. [16]. The UAE has a comparable obesity rate with the USA [3]. Moreover, the UAE has a high childhood obesity rate, which usually transcribes into an estimated high obesity rate [17].

Another risk factor for cancers is smoking [18]. The gender-wise distribution of UAE smokers is estimated to be 0.8% females and 24.3% males [18]. A variety of ways have been offered in different parts of the world for inhaling smoke, yet cigarette smoking (77.4%) remains the prevalent form of smoking in the UAE, following that midwakh, shisha, and cigars [18, 19]. Seven percent and 3 percent of males and females are reported to smoke Shisha/Hubble Bubble or Hookah. Having a significant carcinogenic effect, one Shisha consumption has been estimated to be comparable to 100 cigarettes consumption [20]. A midwakh has an Arabian origin, it is a small pipe in which aromatic leaf and bark herbs are mixed with dokha and smoked [21]. The traditional western tobacco pipe has a larger bowl than midwakh

pipe, which is usually smaller. A bowl is dipped into dokha flakes container for loading purpose [22]. Iran and the UAE are the primary producers of Midwakh. Dokha has the same effects as other forms of smoking, i.e., acute effects on blood pressure and respiratory rates. However, given the use of tobacco mixture, it is suspected to contain a significantly high content of carcinogen [18].

19.6 Cancer Screening Programs

The UAE leadership has led the efforts in establishing solid cancer screening programs. In 2009, a screening program was started which advised all UAE national women aged 40 years and above to undergo annual mammography screening. Subsequently, in July 2010, a nationwide colorectal cancer screening program was launched, by 2014, three screening programs were established for breast, colorectal, and cervical cancers [23]. Finally, and after the release of lung cancer data in 2017, lung cancer screening with low dose CT scans was implemented [8]. Moreover, various initiatives for cancer screening and awareness have been made, such as the “Pink Caravan” event. This awareness campaign used to raise breast cancer awareness and encourage screening, now occurs on an annual basis, and reaches more than 45,000 women annually across the UAE [24].

19.7 Cancer Prevention Programs

As previously mentioned, cancer incidence has been related to several risk factors that can be modified on a nationwide scale. The UAE has increased awareness of obesity linked to malignancies, also fighting childhood and adult obesity [25]. The government has taken an initiative related to this and in December 2019, increased the tax on sweetened beverages [26]. Other preventive measures are also in effect, such as the offering of counseling services and programs and implementation of healthy lifestyles in the UAE.

Smoking cessation programs have also been established on a nationwide scale. In the UAE, the prohibition of smoking in indoor public spaces and an increased tax on all tobacco products have been implemented [27]. As early as 2014, the government has banned all advertisements for tobacco products, all cigarette packages have mandated warning labels, and lastly, the restriction to selling any tobacco products to an individual who is less than 18 years of age. Moreover, the government also introduced a law that bans smoking inside personal vehicles in the presence of a child who is less than 12 years of age [28]. In public areas of some Emirates, smoking shisha is banned [29].

Another very important step in the cancer prevention programs includes the vaccination efforts. The UAE leadership has also led the efforts in promoting

vaccination for cancer prevention. As in 1991, the hepatitis B vaccine was mandated [30], in large part because hepatocellular carcinoma is linked with hepatitis B virus infection [31]. Moreover, the government has now started screening hepatitis B and C for all new immigrants in the UAE, also analyzing hepatitis B immunity and vaccination profiles from 2006 [32]. Moreover, since 2008, all public and private schools have been provided with an optional Human Papillomavirus (HPV) vaccination for girls aged 11–12 years. The vaccine is strongly associated with a decline in cancer rate [33]. More efforts are being made by educating the public on HPV vaccinations for cancers like cervical and head and neck in the UAE, in part because HPV vaccinations might have few misconceptions [34].

19.8 Cancer Diagnosis

19.8.1 *Cytogenetics and Molecular Genetics*

A fundamental part in cancer diagnosis and follow-up response assessment is liquid biopsy for assessing serum circulating tumor DNA (ct-DNA) components [35]. A momentum has gained in the UAE by access to specialized laboratories which are equipped for either ct-DNA or molecular testing on cancer specimens. This will determine the most suitable target for therapy in the near and distant future, consequently individualized cancer treatment will be given. All practicing oncologists in the UAE can access different types of molecular and genetic testing summarized by the recently established Emirates Oncology Society. They are currently available at www.eos.ae.

19.9 Treatment

19.9.1 *Oncology Physicians*

The UAE cancer-treating physicians are active, coming from different backgrounds of training and expertise and are working in an effective and efficient harmony in order to provide the best care available for patients. In the currently available published databases, The Department of Health, Abu Dhabi has 34 registered medical and radiation oncologists, Dubai Health Authority has 26 and the Northern Emirates has six, hence a total of 66 oncologists are registered within the UAE [36]. However, there has been a significant influx of talent and highly specialized physicians in multiple aspects, including oncology care into the UAE allowing more expertise and knowledge sharing among rapidly growing oncology societies such as the Emirates Oncology Society.

19.9.2 Specialized Oncology Services

19.9.2.1 Advanced Treatments

The UAE health care authorities have facilitated adequate access to all approved medications, including the new and novel drugs for the treatment of cancer. These medications are usually made available to patients as they have passed rigorous assessment and approved by the Food and Drug Administration (FDA). The UAE implements very strict packaging and storing guidelines to ensure safety of those medications along with best practice to ensure safe delivery of those. The hospitals normally request it directly from the pharmaceutical companies that supply certain drugs, and the drug costs are covered if indicated. As a suggestion by the EOS consensus group, bulk ordering of medications through the government rather than directly by hospitals is an approach to reducing the cost of such drugs [15].

19.9.2.2 Stem Cell Transplantation

Up until recently, adult and pediatric patients from the UAE had to travel abroad to receive Hematopoietic Stem Cell Transplant (HSCT), putting a significant distress and expenditure on the patients, their families, and to the healthcare authorities. However, very successful recent developments have been happening in this field, including the first successful bone marrow transplant (BMT) by Abu Dhabi Stem Cell transplant cell, operated by the government, and the opening of the bone marrow transplant unit in Burjeel Medical City in Abu Dhabi as well. Further optimistic and more bone marrow programs are being launched within the UAE to cover all aspects of HSCT and advanced CAR-T cell therapy.

19.9.3 Radiation Oncology

Radiation Oncology/or Radiation Therapy is also becoming more available and accessible to patients within the UAE and international patients travel to the UAE for their treatment. Despite its significant expense, complexity and high caliber and unique training required, the UAE has had a very successful start and growth of radiotherapy departments offering the most complex and comprehensive form of treatments. Tawam Hospital had the first radiotherapy department in Abu Dhabi. Currently, there are three operational radiotherapy departments in Abu Dhabi, three in Dubai, one in Ras-Al Khaimah (Northern Emirates). Several new private and government hospitals have announced the plans to start radiotherapy departments, allowing patients for adequate access to high-quality well-maintained radiotherapy

departments for both local UAE residents and international patients flying from abroad to receive radiotherapy in the UAE [15].

19.9.4 Pediatric Oncology

Pediatric hematology and oncology cases are in the expected range, despite the UAE consisting of a mostly young population. According to 2015 data, a total of 165 children, aged 0–14 years, were diagnosed with cancer. The public and private healthcare sectors of the UAE have many pediatric oncology centers. Such entities have an appropriate number of nursing staff, pediatric oncologists, therapists, and radiation therapy facilities. However, the lack of HSCT centers remains the most significant limitation of pediatric oncology in the UAE. Many established cancer centers and facilities are trying to address this concern [15].

19.9.5 Palliative Care Track

A strong call to promote palliative and support care in the UAE has been urged since early access to palliative care can improve the patients' outcomes and quality of life [37]. Tawam Hospital as well as other private oncology providers in the UAE has a dedicated palliative care service. The palliative care medications that are frequently used are available in the country. The UAE Federal Law No. 4 on Medical Liability [38] has validated the permissibility of natural death of terminally ill patients since 2016. This new law refrains healthcare professionals from performing cardiopulmonary resuscitation (CPR) and allowing natural death of terminally ill or dying patients who are suffering from incurable illnesses, provided the following conditions are met:

- Irremediable condition of the patient
- Exhaustion of all treatment methods
- A medical condition where the treatment has proven to be useless
- The provision of CPR has been refrained to the patient on the advice of treating doctor; and
- Three consulting doctors, at minimum, decide that natural death is allowed as per requirement of patients' interest, and that CPR should be avoided. (In this case, the patients', his guardian/custodians' consent is not required.)

In the National Cancer Control Plan, multiple locations in the UAE should establish a national palliative and supportive care program, as recommended by EOS [15].

19.10 Research and Education

19.10.1 Research

UAE oncology societies have research activities too. Recent publications led by UAE investigators are appearing in premiere medical journals, despite comparable limited research capacity [39–41]. UAE population specific research should be evaluated in the light of distinct epigenetic and biological variables in the UAE, which are most likely to be contrasted in other societies. The earlier onset of breast cancer in the UAE compared with Western countries is an example of this phenomenon [42]. Hence, Western based treatment protocols might have to be altered according to the unique patient population in the UAE.

19.10.2 Education and Training

The UAE has increased the number of dedicated oncology training programs in the country. Tawam Hospital has launched a first medical oncology fellowship program, in November 2019. Other public and private hospitals also have few oncology training programs. As the scope of medical practice increases, the UAE has planned for more advanced training programs, empowering medical professionals from the region to train and practice in the UAE [15].

19.11 Cost-Effective Cancer Care

Individuals and the government are always burdened by the cost of cancer care services. The anticipation of an increase in cancer cases poses a special challenge in the UAE to requiring diagnostic and treatment services. Cancer has become a chronic disease, leading to the advancements in cancer therapy (new and costly drugs such as immunotherapies). EOS has recently tried to address the cost issue by suggesting the bulk purchase of drugs from pharmaceutical companies rather than individual purchase by hospitals or institutions [15].

Another way of improving efficiency and reducing cost on the health care system would be to adopt more innovative models for reimbursement; for example, a “per-site” rather than a “per-fraction” radiation model [43]. This means more cost-effective cancer treatment, and reducing the number of treatments, hence patients and their caregivers, who often accompany their patients, can have a reduced number of potential days off to the radiotherapy facilities.

Guidelines relating to the utilization of cutting-edge imaging modalities, for example, Positron Emission Tomography (PET/CT) scans have been carried out and this has diminished the follow-up expenses that oncology patients often need.

Additionally, unimportant X-ray or CT scans have likewise been controlled to prevent unnecessary and potentially hazardous scans for the patient [44].

Finally, and probably most importantly, screening and early detection of common cancers is crucial. Nationwide cancer screening programs have been implemented by the UAE health authorities. However, such screening programs still have a low compliance rate. Despite this, the number of patients diagnosed with advanced, stage IV breast cancer has been significantly reduced from 20% to 6%.

19.12 Challenges and Advantages

19.12.1 Medical Tourism in the UAE

The process of traveling internationally outside the resident's country aimed at receiving medical care is termed as "Medical Tourism" [45]. The UAE government has financially supported a significant number of patients who seek cancer treatment abroad [46]. Every case is assessed at the individual level, and a decision to provide medical treatment abroad is made. The UAE official health authorities, Armed Forces, Presidential Affairs, Police, and charitable organizations are a few sponsoring agencies. Moreover, patients can also pay directly through self-payment mode. The highest percentage of medical tourism undertaken by UAE citizens is attributed to oncology and orthopedic surgery, while cancer treatment comprises the highest number of trips and expenditure (Salim et al., 2008). USA, South Korea, Germany, Singapore, and Thailand are some treatment destinations for cancer patients [47].

However, on the opposite hand, there has been a recent other-way-around medical tourism. That is, patients from abroad are coming to the UAE to seek medical support. This has been mostly related to the recent government led and supported state-of-the-art health care facilities, along with leading private sector health care providers attracting international talent to come and practice in the UAE.

19.13 The Future of Cancer Care in the UAE

Since the UAE is moving towards improved cancer care services, the alliance of the public and private sector has led to the establishment of organizations such as Emirates Oncology Society (EOS), with the purpose to regularize oncology care services in the UAE [15]. The UAE has almost all cancer modalities and therapies available, yet the government continues to support those who need and seek treatment abroad. Cancer patients have continuous support from the UAE government within the UAE. Patients have been advised by the Federal Cancer Care Agency on cancer care. Additionally, an important role is being played by the Federal National

Cancer Registry to plan oncology care across the country and designate population need based resources.

The UAE Oncology Society established the cancer system quality index. This will administer various variables to measure the quality of cancer care including waiting times from diagnosis to treatment, chemotherapy utilization, radiation treatment timelines and treatment delivery, monitoring of complications related to chemotherapy, radiotherapy, and surgery. The Quality Measurement Advisory Council in Ontario (Canada) has created this model to establish an independent advisory cancer care quality council that aims to standardize and unifies treatments of oncology patients [48, 49]. The UAE has adapted the same model. However, it is critical for UAE cancer care entities to collaboratively work with leading oncology institutions to monitor outcomes regularly.

The UAE has announced various public and private new cancer care tertiary centers. Such hospitals commonly cooperate with other world-leading oncology care facilities, for instance, the collaboration between the Mayo Clinic and Sheikh Shakhboub Medical City, or Johns Hopkins Hospital collaboration with Tawam Hospital, Burjeel Medical City along with its 2021 European Society of Medical Oncology (ESMO) accreditation and so on. The increased number of highly trained physicians in the UAE is the result of such collaborative efforts, offering complex as well as comprehensive cancer treatment services. Although Tawam Hospital remains the prime comprehensive cancer care facility in the UAE, its location, which is at the far east end of the country, makes the conveyance to and from the facility extra challenging. Therefore, comprehensive cancer care facilities elsewhere that are more accessible to patients in the UAE can help cancer care facilities to grow.

As the economy and population of the UAE is growing, the number of cancer patients is also increasing, regardless of the relatively small population. This predicts an increase in the number of cancer patients that will have better clinical outcomes, if treated in specialized cancer care facilities [50]. The best solution has been presented by EOS to equip the cancer care facilities with multiple satellites for a centralized cancer care with approachable clinics across the country [15].

Nationwide establishment of the cancer electronic health record system is another useful recommendation by EOS [15]. Oncologists can request all the genetic workup platforms, which are currently available at the website (www.eos.ae). Such platforms can be utilized in Unified treatment protocols with various institutions and the establishment of a national ordering system for chemotherapy/immunotherapy, aiming to optimize resource allocation in the UAE in the future.

Finally, a multidisciplinary approach is involved in cancer care, hence a centralized virtual multidisciplinary tumor board across the UAE governing different health facilities can be a good resource to take cancer care forward. The diagnosis and management of newly diagnosed cancer cases is guided by this group in the UAE.

19.14 Conclusion

Despite a comparatively young population, the healthcare system of the United Arab Emirates is one of the leading health systems in the world. Various public and private healthcare facilities are providing comprehensive cancer care services. Developmental programs are planned to make the UAE a central part of inflowing medical tourism soon. Complex cancer care in the UAE has improved due to highly trained healthcare providers, in addition with governmental funding and logistic support. More advancements are required to enhance collaborative efforts with other cancer centers at national and international level including those in the Arab world.

Conflict of Interest Authors have no conflict of interest to declare.

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