Access to Oncology Care in Morocco: Current Situation and Outlook

Aitouma Ahlam[1,4]*, Bourras Nouhaila[2], Younes Bouferma[3,4], Jaa Mustapha[3], Ech-chafiy Ahmed[5], Ahizoune Sakhr[1,6]

[1]Faculty of Medicine and Pharmacy Mohamed V University, Rabat, Morocco

[2]Faculty of Medicine and Pharmacy of Marrakech, University Cadi Ayyad,Morocco

[3]Higher institute of Nursing and Health technology Rabat, Morocco

[4]Moroccan League for Scientific Research and the Right to Health

[5]Higher institute of Nursing and Health technology, Marrakech, Morocco

[6]Research team in care and biology health care, health and sustainable developemntlaboratory, Higher institute of Nursing and Health technology Casablanca, Morocco

***Correspondence Author**

DOI: https://doi.org/10.51244/IJRSI.2025.1215000151P

Received: 14 September 2025; Accepted: 20 September 2025; Published: 14 October 2025

ABSTRACT

Background: Access to health care is an important aspect of the performance of health care systems around the world. Given the high incidence of cancer in Morocco, access to oncology care has become a major component in assessing the quality of healthcare provision and thus the performance of the country's healthcare system. However, to our knowledge, few studies have addressed this issue.Through our study, we analyze the notion of access to oncology care in Morocco and propose recommendations that meet the identified needs.

Materials and methods: This is a systematic review of the literature of all articles based on access to oncology care in Morocco from January 2008 to June 2022 through a literatu research on the computerized international database (PUBMED) and a manual search on Google Scholar due to the lack of articles in the literature related to our subject.A thorough reading of the selected articles was made in order to collect information related to our subject.

Results:15 articles were eligible in our study.The state of play in Morocco found a cancer incidence of 137.3 per 100,000 Moroccans in2012, the most common cancer was breast cancer in women, and lung cancer in men. The national population's medical coverage rate was 66% in 2018. In 2020, there were 31 regional pediatric oncology and hemato-oncology centers in Morocco divided between the public and liberal sectors. The treatment and diagnosis of cancer in Morocco is done through limited equipment in small structures dominated by the private sector. The total number of specialist physicians trained in 2015 was 62 oncologists, 92 radiotherapists and 18 pediatric oncologists. The time between onset of the first symptoms and treatment was 160 days for breast cancer,216 days for lung cancer,219 days for cervical cancer.Barriers to screening, diagnosis and treatment were classified into 3 groups: Geographic barriers,financial barriers and socio-cultural barriers.The National Cancer Prevention and Control Plan is the country's primary intervention to improve cancer management.

Conclusion: Access to oncology care in Morocco remains precarious despite the country's achievements.Further strategies will need to be implemented to improve the quality of management and access to oncology care.

Keyswords : Access to care -oncology -cancer -treatment- Morocco -care pathway

Abbreviations:

AMO: Compulsory health insurance

CHU: University Hospital Centrer

FLPTC: Lalla Salma Foundation for Cancer Prevention and Treatment

MRI: Magnetic resonance imaging

NCI: Designated cancer centers

WHO: World HealthOrganization

PET: Positron Emission Tomography

GDP: Gross domesticproduct

PNPCC: National cancer prevention and control plan

PDV: Perdus de vue

RAMED:Medical assistance scheme for the economically disadvantaged

SP: Palliative care

UICC: International Union Against Cancer

INTRODUCTION

Access to healthcare is a crucial aspect of the performance of health systems worldwide. In Morocco, it is also inseparable from the constitutional right to health. Cancer, with around 50,000 new cases annually, has become a major public health problem in Morocco [1]. According to the World Health Organization health system profiles, cancer incidence and health system performance vary significantly across the region, with Morocco facing similar challenges as Tunisia and Egypt [2,3,4].

Several regional and international initiatives have been implemented to address the growing cancer burden. Tunisia adopted its first national cancer plan in 2006, Algeria followed with a plan for 2015–2019, while France structured its national cancer strategy as early as 2003 [5,6,7]. Morocco developed its National Cancer Prevention and Control Plan (PNPCC) in 2010, reinforced by the Lalla Salma Foundation which played a leading role in cancer prevention, screening, and treatment [8,9].

At the international level, wide disparities persist. For example, prostate cancer is the leading cancer among men in the United States, while liver cancer predominates in Egypt due to the high prevalence of viral hepatitis [10,11]. Similarly, health system expenditures dedicated to oncology vary significantly, with the United States devoting nearly 20% of its GDP to health, compared to 6% in Morocco [12]. These contrasts highlight the need to contextualize Morocco's situation within both regional and global perspectives.

This study aims to systematically analyze access to oncology care in Morocco with the following specific objectives: (i) describe the epidemiological situation of cancer, (ii) detail the oncology care pathway, (iii) identify barriers influencing delays or non-use of care, (iv) assess Morocco's efforts to improve cancer care, and (v) propose recommendations adapted to the identified needs.

METHOD

Type of study:

Our workisbased on a systematicliteraturereview of all articles on access to oncology care in Morocco, using the Cochrane Collaboration Handbook protocol for systematic literature reviews[4].

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI | Volume XII Issue XV September 2025 | Special Issue on Public Health

Study procedure

A bibliographic search was carried out to list all articles explaining Morocco'sapproach to cancer and access to oncological care.

Validation and selection of published articles were assessed by assigning quality indices and defining exclusion thresholds. A criticalreading of each article was then necessary to extract the various data and information available on the articles found, and finally we carried out a synthesis of the results of all the literature on the subject.

Searchstrategy

Two types of literature search strategies were used for this systematic literature review:

Computerized literature search strategy:

This study consisted in searching all articles listed on the computerized database "PUBMED", from the date of the first medical oncology publication in Morocco in January 2008 to June 2022. The search terms "Morocco" OR "Maroc" AND "Access to cancer care" OR "accès aux soins oncologiques" or "accès aux soins cancérologiques" were used in all possible combinations.

Manual" literaturesearchstrategy

In addition to the computerizedliteraturesearch, and due to the lack of articles in the literaturerelating to oursubject, a manualliteraturesearchwascarried out using bibliographic references not indexed in the Pubmed* database, and using combinations of words previously searched on Google Scholar* https://scholar.google.com/.Cette "Manual" search strategy enabled us to gather additional articles for the subject we were studying.

Inclusion and exclusion criteria

Inclusion criteria:

We included studies that met all the criteria below:

 The language of writing was restricted to English and French.

 Articles weresearchedfrom 2008 to June 2022.

 The study location had to include Morocco.

 Dealing with access to oncology care, its limitations and the state of cancer.

Exclusion criteria:

Weexcluded all articles:

 Non-French-speaking and non-English-speaking.

 Having been retracted by the author or publisher.

Data analysis:

In order to analyze and compare eachselected article systematically and identically, the following information wasused to orderthem:

- Type of study

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI | Volume XII Issue XV September 2025 | Special Issue on Public Health

- Author and year of publication
- Population included
- Study country
- Primary research question

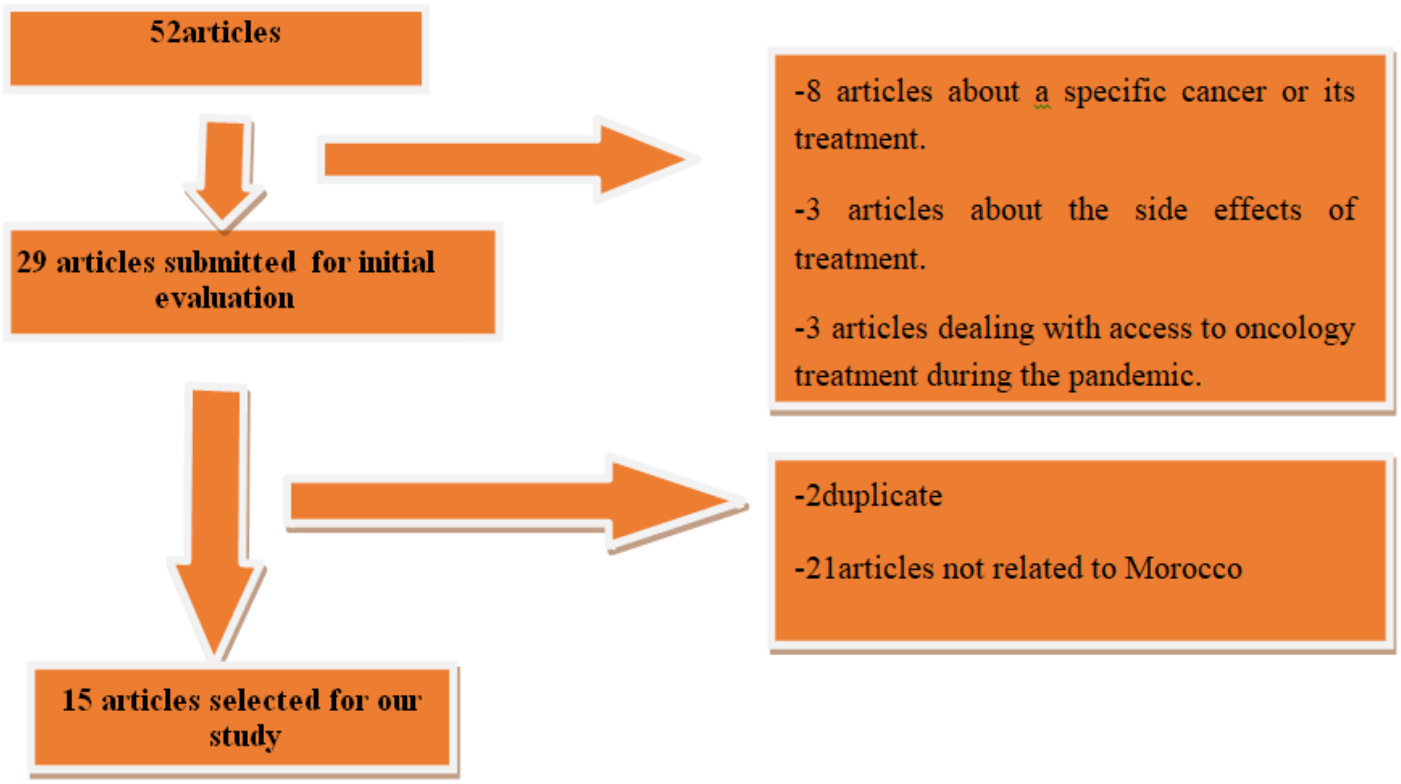
RESULTS

Based on key words, 15 articles were retained in this study out of 52 identified: 47 articles were found on the "Pub Med" search engine using the combinations described above, while 5 articles were found following a manual search.

An initial reading of the article titles rejected 2 duplicates and 21 articles relating to countries other than Morocco.

After a thorough reading of the remaining articles, 14 articles that did not answer our question were rejected: 3 articles relating to access to oncology care during the Covid pandemic, 8 articles dealing with a specific cancer and its treatment, and 3 others dealing with the side effects of oncologyt reatment.

Finally, 15 articles were included in the analysis of our systematic literature review. Figure 1 below summarizes the procedure followed in this study.



Cancer control strategies in the Maghreb [5,6]:

-Low population coverage and lack of computerization (Morocco: 20%, Tunisia: 60%, Algeria: 82%).

-Insufficient primary prevention with high prevalence of smoking (Tunisia: 26%, Algeria: 19%, Morocco: 14%).

-Low coverage of cancer screening (Tunisia: 14% for cervical cancer and 10% for breast cancer).

-Limited access to health services, with few oncology centers (Morocco: 6, Algeria: 3, Tunisia: 1).

-Palliative care mainly supported by civil society.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI | Volume XII Issue XV September 2025 | Special Issue on Public Health

Delays in breast cancer care [7] :

-Time to diagnosis: 33.5 days.

-Time to multidisciplinary meeting: 20.4 days.

-Time to 1st treatment: 51.1 days for chemotherapy, 75.5 days for surgery.

-Time to post-operativechemotherapy: 83.7 days.

-Overall mammography-radiotherapy time: 372 days.

Delays for lung cancer[8] :

-Average consultation time (patient time): 3.92 months.

-Diagnostic time: 63.5 days.

-Therapeutic time: 67.9 days.

-Overall time: 216.3 days.

Socio-cultural barriers to breastcancer diagnosis in Marrakech [9] :

-Structural barriers: high costs, difficult transport, limited access to healthcare resources.

-Socio-cultural barriers: stigma, community influence, religious beliefs.

Access to care for advanced breast cancer in Morocco[10] :

-Advanced stages: 7 to 14% of cases at diagnosis.

-Metastaticbreast cancer: 1,400 cases/year.

-Care provided by 12 privateclinics and a few public centers.

-Treatment cost estimated at 35,058 euros per patient in public hospitals.

Delays in treatment for cervical cancer [11] :

-59.5% of patients at stage I/II.

-Access and treatment times: 5.0 months and 2.3 monthsrespectively.

-Mediansurgery-radiotherapyinterval: 3.1 months.

-Disease-free survival at 5 years: 57.5%.

Factors in latediagnosis of lymphoma [12] :

-Delay associatedwith male gender, unmarriedstatus, low socio economic level.

-Medical delay associated with three or more medical visits prior to diagnosis.

Discordance between consultations and treatment of lungcancer [13] :

-Lack of optimal patient selection.

-Lack of multidisciplinary meetings.

-15% of patients lost to follow-up before treatment.

Lost to follow-up in oncology in Morocco [14] :

-Lost to follow-up rate at one year: 48%.

-Lost to follow-up status linked to sex, age, marital status, cancer location, stage of diagnosis and type of treatment.

Cancer incidence and oncology care status [15] :

-Common male cancers: lung, prostate, bladder, colorectal, lymphoma.

-Common female cancers: breast, cervix, colon, thyroid, ovary.

-Breast cancer mostcommon in women (36%).

Delays in consultation and treatment for breast cancer [16]:

-54% of women diagnosed at an early stage, 46% at an advanced stage.

-Total mediandelay: 120 days.

-Risk of long delayassociatedwithage, illiteracy, rural residence, low socioeconomic status.

Delay in diagnosis of advancedbreast cancer[17]:

-Delay due to personal (70.1%) and medical (13.9%) reasons.

-Predictive factors: symptoms not considered serious, traditional therapy, fear of diagnosis and treatment.

-Increased risk of delay in women living in rural areas and far from specialized care centers.

The cost of cancer treatment with new therapies in Morocco [18,19] :

Cancer is a major public health issue in Africa. Although significant progress has been made with targeted therapies, these treatments remain inaccessible to the majority of patients in developing countries. In Morocco, cancer patients receive health coverage, and the involvement of civil society has improved access to innovative medications for disadvantaged patients.

Table I: Characteristics of the articles selected:

Items	Authors	Country of publication/Language	Year	Populationt arget	Method	Purpose of the study
Strategies of Maghreb countries in the fight against cancer	Hyem Khiari, Rym Mallekh, Mohamed Hsairi	Tunisia/ French	2021	Morocco Algeria Tunisia	Search in databases bibliographic	Describe cancer control strategies in Maghreb countries and identify their main shortcomings
Analysis of breast cancer treatment times: experience of a tertiary reference center in Morocco	Mohsine Mimouni, Wahid Chaouki, Hassan Errihani, Noureddine Benjaafar	Morocco/French	2018	Moroccan patients with breast cancer	Retrospective analysis of 373 patient files	Study of the delays in the care pathway for breast cancer in the largest public cancer center.
Sociocultural Barriers Related to Late-Stage	Ann A. Soliman & Mouna Khouchani&	United States/English	2019	Moroccan patients with breast	Qualitative interviews were conducted with 25	Elucidating barriers to diagnosis and treatment and ease of

Presentation of Breast Cancer in Morocco	Elisha P. Renne			cancer	breast cancer patients treated at the Mohammed VI University Hospital in Marrakech.	access to care.
Delays in Care of Lung Cancer: A Moroccan Public Health Problem	N. Benchakroun, S. Ridai, Z. Bouchbika, H. Jouhadi, N. Tawfik, S. Sahraoui, A. Benider	Morocco/ English	2019	Moroccan patients with lung cancer.	Single-center retrospective study in patients treated for lung cancer between January 2012 and November 2017 at the Mohamed VI Cancer Center.	Study of the time between the appearance of the first clinical signs and the initiation of the different therapeutic sequences.
Access to care for advanced breast cancer In middle-income country: example of Morocco	Narjiss Berrada, Mrabti Hind, Mamouche Fouzia, Ettahri Hamza, Layachi Mohammed, Raiss Hanane, ElomraniFadoua, Ouzine Imane, Elghissassi Ibrahim, Boutayeb Saber, Errihani Hassan	Morocco/English	2015	Moroccan patients with breast cancer	Review of the literature and a survey of 25 medical oncologists working in different centers on their practices.	Description of the state of affairs and conditions influencing access to care for these patients
Tackling cancer burden in low-income and middle-income countries: Morocco as an exemplar	Farida Selmouni, Ahmed Zidouh, Latifa Belakhel, Catherine Sauvaget, Maria Bennani, Youssef Chami Khazraji, Abdellatif Benider, Christopher P Wild, Rachid Bekkali, Ibtihal Fadhil, Rengaswamy Sankaranarayanan	France/English	2018	Morocco	Search literature in pubmed and reports published by the Ministry of Health of Morocco, other government agencies, non-governmental organizations (WHO reports, Lalla Salma Foundation reports, etc.).	Description of Morocco's strategy to fight cancer and its different components
Evolution of patterns of care for women with cervical cancer in Morocco over a decade	Abdellatif Benider, Karima Bendahhou Catherine Sauvaget, Hind Mrabti, Farida Selmouni, Richard Muwonge, Leila Alaoui, Eric Lucas, Youssef Chami, LoubnaAbousselham , Maria Bennani, Hassan Errihani, Rengaswamy Sankaranarayanan, Rachid Bekkali and	Morocco/English	2022	Moroccan patients with cervical cancer	Retrospective study including patients with cervical cancer registered at the Mohammed VI Center (Casblanca) and at the National Institute of Oncology (Rabat) for 2 months of each year from 2008 to 2017	Comparison of treatment times in patients with cervical cancer after 10 years.

	Partha Basu					
The problem of the cost of new therapies in oncology: what about Morocco?	Sami Aziz Brahmi, Ziani Fatima Zahra, Youssef Seddik, Said Afqir	Morocco/French	2016	Morocco	Literature paper	Access to new therapies in Oncology.
Factors Associated with Delayed Diagnosis of Lymphomas: Experience with Patients from Hematology Centers in Morocco	MajdoulineObte, Mohamed Berraho Naima Abda, Asmae Ouessa, Ahmed Zdouh, Rachid Bekkali, Chakib Nejjari	Morocco /English	2008	Morocco	A cross-sectional study carried out in three hematology centers in Morocco in 2008	Analyze the impact of sociodemographic and clinical factors on the time between symptoms and diagnosis.
Lung cancer: care pathway in the radiotherapy department at the national oncology institute in Rabat	Amine Lachgar, Nadir Sahli, AhmedouToulba, Tayeb Kebdani, Noureddine Benjaafar	Morocco/French	2015	Moroccan patients with lung cancer	Data collection was done through clinical files, the register of new patients from the admissions office of the institute as well as the registers of consultation and treatment appointments from the radiotherapy department.	study describing the care circuit for patients admitted to the radiotherapy department of the National Institute of Oncology in Rabat for the management of inoperable and/or unresectable lung cancer.
The determinants of "lost to follow-up" status among patients treated for cancer in Morocco: situation before the Cancer Plan	Adil Najdi, Mohamed Berraho, Karima Bendahhou, MajdoulineObtel, Ahmed Zidouh, Hassan Errihani, Chakib Nejjari	Morocco/French	2013	Cancer patients in Morocco	Retrospective study of the files of patients hospitalized in the three main oncology centers in Morocco	To estimate the frequency of loss to follow-up "PDV" in oncology in Morocco during the first year of follow-up and to determine the factors associated with this problem.
Access to therapeutic innovation in oncology in developing countries, between ethics and practices. Example from Morocco	H. Ettahri, A. Tahirb,c, S. Baldé a,b, S. Oughellita,b, S. Aklaa,b, M. Elkabousd, H. Errihania,b	Morocco/French	2018	Morocco	Literature paper	Study of access to care and therapeutic innovation in oncology in Morocco being a developing country.
Determinants of patient and health system delays for women with breast cancer in Morocco	Majbar MA, Maghous A, Rais F, Ahid S, Benhmidou N, Bellahamou K, et al.	Morocco	2015	Moroccan patients with breast cancer	Cross-sectional study from December 2012 to May 2013 at INO in Rabat	Determine consultation, diagnosis and access to treatment times and analyze the factors likely to influence

						their duration
General Oncology Care in Morocco	Saber Boutayeb and Mohammed Anass Majbar (Cancer in the Arab world) Chapter 11	United Arab Emirates/English	2022	Morocco (theArab countries)	Literature paper	Statistical study on the incidence of cancer and the current state of oncological care in Morocco and the Arab world
Factors influencing diagnosis delayadvanced breast cancer in Moroccan women	A Maghous, F Rais, S Ahid, N Benhmidou, K Bellahamou, H Loughlimi, E Marnouche, S Elmajjaoui, H Elkacemi, T Kebdani, N Benjaafar	Morocco	2016	PatientsMoroccansuffering frombreast cancer	Interviews at the National Institute of Oncology in Rabat between February and December 2014.	Study of the reasons for the delay in diagnosis ofadvanced breast cancer in womenMoroccan

DISCUSSION

State of play in Morocco:

We compared the state of affairs in Morocco to other neighboring countries both geographically and economically (Algeria, Tunisia, Egypt), and to other developed countries (United States). During document collection, a difference in the dates of cancer statisticswasnotedwith the last update in the United States in 2020, while the latest existing statistics in the literature from Morocco and similar countries date back to 2012.

In order to objectively compare the statistics of these different countries, we collected data dating back to the samestudy period (2008-2012):

Frequency of cancers in Morocco:

In men, the mostcommon cancer in Morocco and Algeria waslung cancer, in Egypt, liver cancer was the most common, but in the United States, itis prostate cancer which occupies the first place[20,21,22].

Table II: The top 5 cancers in men by country between 2008-2012

	Morocco	Algeria	Egypt	UNITED STATES
Lung	23%	15%	5.70%	15.40%
Prostate	12.60%	10.50%	4.30%	25%
Colorectal	8%	13.00%	ND	10.60%
Bladder	6%	9%	10.70%	7%
lymphoma	6%	ND	5.50%	4.80%
Liver	ND	5%	33.60%	ND

Amongwomen, breast cancer was the most common in Morocco and in the rest of the countries.

Table III: The 5 most common cancers in women by country between 2008-2012

	Morocco	Algeria	Egypt	UNITED STATES
Breast	36%	40%	32.40%	26.4%%
Cervix	11.20%	9.00%	ND	25%
Thyroid	9%	12.50%	3.28%	10.60%
Colorectal	6%	15%	ND	11%

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI | Volume XII Issue XV September 2025 | Special Issue on Public Health

Ovary	4%	4%	4.10%	ND
Liver	ND	ND	13.50%	ND
Lymphoma	ND	ND	3.80%	4.40%
Lung	ND	ND	ND	14.50%
Uterus	ND	ND	ND	5.80%

Although the etiology of cancer ismultifactorial, exposure to risk factors remains a major contributor. This can explain the difference in distribution between these different countries. As an illustration, tobacco represents one of the most predominant risk factors in Morocco, with a prevalence in the general population of 18% among adults and 9% among young people[23], thusexplaining the place of lung cancer. Unlike Egypt where Liver Cancer predominates due to the high prevalence of Viral Hepatitis in thiscountry [24].

Cancer incidence in Morocco:

The increase in the incidence rate from 101.7 per 100,000 Moroccansin 2004 to 137.3 per 100,000 in 2012 maybe due to numerous factors relating in particular to the aging of the population, in fact, while older people aged 60 and over represented only 8% of the entire Moroccan population in 2004, their share in the total population reached 9.6% in 2019[25]. The predominance of certain risky behaviors (tobacco, dietunhealthy), lifestyle (sedentary lifestyle, obesity), various pollution and professionalexposures can also explain this increase. Another reason that could explain this increase is the improvement in access to cancer diagnosis and organized early detection programs.

Medical cover :

We compared the coverage rate of the Moroccan population withthat of Egypt and Tunisia, and that of the United States [26, 27,28].

In 2018 the United States reached a significant rate (91%) in contrast to other countries (Morocco: 66%, Tunisia: 65%, Egypt: 68%). This can beexplained by various factors, for example the existence of high unemployment, the stagnation of wages, the persistence and extent of informal work, the instability of the return on investment of social securityfunds, the low level of reserve funds and the progression of demographic aging in the last 3 countries. Indeed, Morocco is setting up a basic medical coverage system, the aim of whichis to achieve universal coverage, compulsory medical insurance (AMO) and the Medical Assistance Scheme (RAMED) recently switched to medical insurance obligatory solidarity.

Infrastructure and equipment:

Our results made it possible to deducethat the distribution of oncology centers isunevenacross the territory, withveryfavoredregions (the Casablanca, Rabat axis) and others (the Sahara region for example) in whichConversely, density is much lower than average in both the public and private sectors. Morocco has seen a marked improvement in the provision of cancer care: the construction of 6 new oncology centers and more than 16 private clinics providing specialized oncology care. Comparing our results to those of the United States, a big difference was obviously found, with the presence in the United States of more than 70 cancer centers designated and funded by the NCI[29], and an indefinite number of other private establishments.

Although the United States and Morocco are dissimilar on several levels, notably socio-economically, the performance of the health system is one of the main discordances. Indeed, the share of the state budget (grossdomesticproduct-GDP) devoted to health, responsible among other things for financing oncological care, is 6% in Morocco in contrast to the United States which devotes 19.7% of its PID to the health system, while the share recommended by the WHO was 9%[30,29].

The data foundrelating to imaging and diagnostic techniques in Morocco dates back to 2015 when therewere 60 colposcopyunits, 75 mammographyunits, 56 scanner units, 12 scintigraphyunits, 45 IRM units and 7 PET units.

Currently, thereis a slight improvement in terms of equipment, for example the installation of a new PET Scan and 16 more IRM units, making a total of 2 PET SCANs and 24 IRMs in the public sector throughout our country. According to data from the latest version of the `health in figures 2020` survey 34. However, this number remains insufficient. For comparison with France, 110 IRMs were installed in 2018 only for the Auvergne-Rhône-Alpes region. The deficitisalsoenormous in terms of services and care units.

Moreover, itis the liberal sector which dominates this infrastructure with more than half of the total of this equipment. Brachytherapy units, for example, number 9 in total throughout Morocco with 6 private units, alsothere are 37 IRMs in private establishments compared to 24 state units.

Human resources

According to our results, 65 oncologists and 92 radiotherapists existed in 2015. Currently, there are more than 190 radiotherapists and nearly 180 medical oncologists in Morocco, making a density of one radiotherapist for more than 400 new cases and one medical oncologist for more than 300 new ones [32]. A clear increase was achieved for these relatively new specialties in Morocco. Indeed, oncology was recognized as a distinct specialty in 1994, but the real takeoff only took place since the 2000s, after the creation of the first chair of medical oncology at the University of Rabat [33]. However, the regional distribution of these health professionals largely favors metropolitan regions and urban areas. Indeed, 22% of public professionals are concentrated in the regions of Greater Casablanca and Rabat-Salé where 20% of the population live [34]. Morocco is experiencing a clear lack of human resources in health, a situation which complicates access to care for hundreds of cancer patients. The medical density is 6.7 doctors per 10,000 inhabitants in Morocco, while Tunisia has 13 doctors per 10,000 inhabitants with more than 150 oncologists, compared to a standard set by the WHO at 15.3 doctors per 10,000 inhabitants [27,35].

Oncological care pathway in Morocco:

Our results allowed us to detail the journey of the patient suffering from lung cancer after confirmation of their diagnosis in a specific therapeutic oncological department. However, this circuit, which is common among all cancer patients, begins well before, from the appearance of the first suspicious symptom until life after cancer. The oncological care pathway in Morocco suffers from several problems; Firstly, basic health care staff should be better trained to recognize the initial symptoms of cancer in order to refer suspected patients to specialized centers at an early stage. Indeed, according to a survey on the delay in presentation and diagnosis of breast cancer among women in Marrakech, some patients report having seen their concerns rejected by a primary care health professional [36]. The unavailability of consultation appointments and examinations necessary for diagnosis is another problem. The virtual non-existence of multidisciplinary consultation meetings aggravates the situation. These meetings are an essential element in the organization of cancer care, they must bring together doctors from different specialties involved in the treatment of cancer [37].

It must allow the patient to have better conditions announcement of his pathology by allowing him to benefit from both medical time for announcement and treatment proposal, caregiver time for support and identification of the patient's needs, access to skills in supportive care, just as it must allow better coordination between community medicine and private and public establishments [38].

However, in our context, the announcement system is practically non-existent, the level study of patients and their illiteracy make it difficult to announce a cancer diagnosis as it is regulated in other industrialized countries [39].

Diagnostic and therapeutic times:

We found that these delays differ depending on the tumor location. We noticed that the average time to diagnosis is much shorter for breast cancer (116 days) and lung cancer (150 days) compared to that of cervical cancer (180 days). This difference can be explained immediately, firstly by the speed of the diagnosis process for breast and lung cancer, then by the strong awareness of the population about these two cancers given their popularity and frequency in Morocco and in the world, in contrast with the lack of information on cervical

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI | Volume XII Issue XV September 2025 | Special Issue on Public Health

cancer, in particular the lack of awareness of the alarming signs suggesting this cancer. The long delay in cervical cancer can also be explained by the absence of more rigorous gynecological follow-up including the regular practice of a Cervico-Vaginal Smear.

To do this, we should strengthen information, education and communication of the population on the signs suggestive of the most frequently encountered cancers, particularly cervical cancer. They should also be encouraged to consult a doctor as soon as possible. By comparing the average times for lung cancer diagnosis, we found a longer time in Morocco (180 days) than in Tunisia (121 days) [40] and Canada (43 days) [40].

In this developed country, men are highly aware of cancer. In addition, screening and diagnostic examinations are better organized and accessible for the general population.

As for the processing time, we observed very long delays in Morocco (216.3 days) and Tunisia (170 days) [40] compared to Canada (138 days) [41]. Delay in cancer treatment is a problem in healthcare systems around the world. The impact of delay on mortality can now be quantified for prioritization and modeling. Even a four-week delay in cancer treatment is associated with increased mortality [42].

Barriers to cancer screening, diagnosis and treatment:

Before designing effective interventions that fight cancer, it is necessary to understand the contributing factors to the lengthening of cancer diagnosis and treatment times.

Barriers to the presentation and treatment of cancer have not been widely studied in Morocco, but we were able to collect a set of barriers that we sorted into 3 groups: Sociocultural barriers, financial barriers and geographic barriers. These barriers relate to the patient, the health system or both.

The country's intervention through several methods is necessary to alleviate these obstacles. For sociocultural barriers, integrating culturally relevant educational strategies as a means to increase knowledge and correct misconceptions about cancer could be an effective and respectful method to reach underserved communities [43]. Studies have shown that when cancer prevention services are available, women with higher levels of education are more likely to use them and benefit from messages regarding breast cancer knowledge and prevention [44].

As for the cost of care, further analysis of recent health insurance reforms and their impact on patients would help determine specific areas for improvement in the health insurance structure.

There are also costs associated with treatment such as transportation to and from appointments if the place of residence is far away. Therefore, this issue of cost but also of distance would be alleviated by increasing the locations of screening, diagnostic and treatment centers, developing the possibility of remote consultations by videoconference, and making diagnostic services and cancer treatment more accessible to Moroccans. The organization of frequent mobile clinics, perhaps a useful option to disseminate adequate medical care in less accessible areas [45]. Providing cheaper and simpler transportation for cancer patients to medical facilities can ease the difficulty of travel and therefore improve access to oncology care.

Strategy and intervention aimed at improving access to oncological care in Morocco:

Morocco's strategies to improve access to oncological care and fight cancer consist of creating, with a set of partners, a national cancer prevention and control plan (PNPCC). The main approaches of this strategy are prevention, screening, diagnosis, treatment and palliative care.

The development of cancer control plans as a clearly defined concept began in the United States in the early 1990s [46]. Internationally, the same concept has been described as "national cancer control planning" or the development and implementation of a national cancer control plan. The Union for International Cancer Control (UICC) defines a national cancer control plan as a “sustainable strategic plan for cancer control, based on the burden of cancer in the country, the prevalence of risk factors of cancer and the resources available to implement the plan in the context of the socio-economic environment and health system in that country” [46].

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI | Volume XII Issue XV September 2025 | Special Issue on Public Health

Thus, the cancer control plan is an international design adapted to the context of each country. This strategy is still relatively new in our country. While Morocco developed the PNPCC in 2010, Tunisia was the first country to adhere to this WHO strategy in 2006. And it was only in 2014 that Algeria developed its "National Plan for Fight against Cancer for the period 2015–2019." In France, the fight against cancer has been structured since 2003 around national plans [48].

Training and development of human resources necessary at different levels:

Since its creation in 2005, the FLSC has set up a training and internship program, in partnership with national, European and American institutions. These training courses benefit hundreds of medical and paramedical staff each year. However, service providers reportedly expressed a need for periodic continuing training during the investigation into the quality of the screening programs developed by the PNPCC [47]. Additionally, the practical training is not very structured and no certificates are issued to participants after the training is completed.

Improving access to medicines

Around 18,000 economically deprived cancer patients would be treated free of charge each year with free access to basic molecules but also to innovative molecules [32,48].

The patient would then benefit free of charge from the care and medications available in public structures during hospitalization, without paying anything. But in reality, it is difficult to achieve this gratuity. The problem that regularly arises is stock shortages of medicines in hospitals, forcing patients to obtain supplies from community pharmacies [19,30].

Palliative care and social support:

This last axis aims to humanize the care and daily support of patients and their families weakened by the disease through the provision of palliative care (SP) for cancer patients and the establishment of accommodation for their companions. However, these SPs mainly concern cancer patients at the end of life and are only found in limited oncology centers. Regarding home care, it is limited to a restricted geographical area due to the lack of human resources. However, supported by numerous scientific publications which show the clinical benefits, early palliative care has become a gold standard in oncology in 2017, recommended by major learned oncology societies for patients with advanced cancer [48]. As for accommodation spaces, there are a total of 6 living houses in Casablanca, Marrakech, Fez, Agadir, Meknes and Tangier with limited accommodation capacity. It is then essential to generalize this compartment of oncological care to all cancer patients according to their needs but also to expand it to cover the entire national territory, to train more health professionals in the field of palliative care and to build more accommodation space.

CONCLUSION

This systematic review highlights that access to oncology care in Morocco remains limited despite progress. The epidemiological situation confirms an increasing cancer incidence, with breast and lung cancers being the most common. The oncology care pathway is characterized by long delays and unequal geographical distribution of infrastructure and professionals. Barriers are mainly geographical, financial, and sociocultural.

Although Morocco has undertaken major efforts through the National Cancer Prevention and Control Plan, notably in screening, treatment, and training, deficiencies persist in material, financial, and human resources. These gaps exacerbate inequalities of access between regions and socioeconomic groups.

In conclusion, our study demonstrates the urgent need to strengthen early detection, expand infrastructure, increase specialized human resources, and reduce sociocultural and financial barriers. By using a rigorous systematic review methodology, this work provides robust evidence to guide policymakers towards more equitable and effective oncology care in Morocco.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests for this study.

ORCID

AITOUMA AHLAM https://orcid.org/0009-0003-3625-5355

REFERENCES

1. Fondation Lalla Salma. Report 2006–2010. Rabat: Lalla Salma Foundation for Cancer Prevention and Treatment; 2011. Available from: https://www.contrelecancer.ma
2. Belyagou Y, Belyagou Y, et al. Access to health care in Morocco during the COVID-19 pandemic: The path to equity. Int J Account Finance Audit Manag Econ. 2022;3:205–220.
3. World Health Organization. Morocco: Health Systems Profile. Cairo: WHO Regional Office for the Eastern Mediterranean; 2020. Available from: https://rho.emro.who.int
4. Higgins JPT, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, Welch V, editors. Cochrane Handbook for Systematic Reviews of Interventions. 2nd ed. Chichester (UK): Wiley; 2019.
5. Khiari H, Mallekh R, Hsairi M. Strategies of the Maghreb countries in the fight against cancer. Tunis Med. 2021;99(1):148–157.
6. Selmouni F, Zidouh A, Belakhel L, Sauvaget C, Bennani M, Chami Y, Benider A, et al. Tackling cancer burden in low- and middle-income countries: Morocco as an exemplar. Lancet Oncol. 2018;19(2):e93–e101. doi:10.1016/S1470-2045(17)30727-1
7. Mimouni M, Chaouki W, Errihani H, Benjaafar N. Analysis of breast cancer treatment times: Experience of a tertiary reference center in Morocco. Bull Cancer. 2018;105(9):755–762. doi:10.1016/j.bulcan.2018.05.010
8. Benchakroun N, Ridai S, Bouchbika Z, Jouhadi H, Tawfik N, Sahraoui S, Benider A. Delays in care of lung cancer: A Moroccan public health problem. J Thorac Oncol. 2019;14(Suppl 10):S2374. doi:10.1016/j.jtho.2019.08.2374
9. Soliman AA, Khouchani M, Renne EP. Sociocultural barriers related to late-stage presentation of breast cancer in Morocco. J Cancer Educ. 2019;34(4):735–742. doi:10.1007/s13187-018-1365-1
10. Berrada N, Mrabti H, Mamouche F, Ettahri H, Layachi M, Raiss H, Elomrani F, et al. Access to care for advanced breast cancer in a middle-income country: Example of Morocco. Clin Breast Cancer. 2015;24(Suppl 3):S65.
11. Benider A, Bendahhou K, et al. Evolution of patterns of care for women with cervical cancer in Morocco over a decade. BMC Cancer. 2022;22:479. doi:10.1186/s12885-022-09629-8
12. Obtel M, Berraho M, et al. Factors associated with delayed diagnosis of lymphomas: Experience with patients from hematology centers in Morocco. Asian Pac J Cancer Prev. 2017;18(6):1603–1610. doi:10.22034/APJCP.18.6.1603
13. Lachgar A, Sahli N, Toulba A, Kebdani T, Benjaafar N. Lung cancer: Care pathway in the radiotherapy department at the National Oncology Institute in Rabat. Pan Afr Med J. 2015;21:253. doi:10.11604/pamj.2015.21.253.6627
14. Najdi A, Berrah M, et al. Determinants of “lost to follow-up” status among patients treated for cancer in Morocco: Situation before the Cancer Plan. Pan Afr Med J. 2014;18:83. doi:10.11604/pamj.2014.18.83.2487
15. Boutayeb S, Majbar MA. General oncology care in Morocco. In: Al-Shamsi HO, Abu-Gheida IH, Iqbal F, Al-Awadhi A, editors. Cancer in the Arab World. Singapore: Springer; 2022. p.125–138.
16. Majbar MA, Maghous A, Rais F, Ahid S, Benhmidou N, Bellahamou K, et al. Determinants of patient and health system delays for women with breast cancer in Morocco. Rev Epidemiol Sante Publique. 2015;63(3):191–201. doi:10.1016/j.respe.2015.03.121
17. Maghous A, Rais F, Ahid S, Benhmidou N, Bellahamou K, Loughlimi H, et al. Breast cancer delay in

Morocco: Experience of the National Institute of Oncology of Rabat. BMC Cancer. 2016;16:356. doi:10.1186/s12885-016-2394-y
18. Brahmi SA, Ziani FZ, Seddik Y, Afqir S. The problem of the cost of new therapies in oncology: What about Morocco? Pan Afr Med J. 2016;24:51. doi:10.11604/pamj.2016.24.51.9512
19. Ettahri, H., Tahir, A., Baldé, S., Oughellit, S., Akla, S., Elkabous, M., & Errihani, H. (2018). Access to therapeutic innovation in oncology in developing countries: Between ethics and practices. Example of Morocco. *Ethics, Medicine and Public Health* (Ethique & Santé), 15(3), 201–204. https://doi.org/10.1016/j.etiqe.2018.04.005
20. Ibrahim AS, Khaled HM, Mikhail NN, Baraka H, Kamel H. Cancer incidence in Egypt: Results of the National Population-Based Cancer Registry Program. J Cancer Epidemiol. 2014;2014:437971. doi:10.1155/2014/437971
21. Wang Y, Wei L, Liu J, Zhang Y, et al. Comparison of cancer incidence between China and the USA. Cancer Biol Med. 2012;9(2):128–132. doi:10.7497/j.issn.2095-3941.2012.02.007
22. Hartman M, Martin AB, Washington B, Catlin A. National health care spending in 2020: Growth driven by federal spending in response to the COVID-19 pandemic. Health Aff. 2022;41(1):13–23. doi:10.1377/hlthaff.2021.01763
23. Benider A, Sahraoui S, et al. Cancer care in Morocco: Toward an organized national cancer control plan. Bull Cancer. 2012;99(1):91–98.
24. Mrabti H, Berrada N, et al. Breast cancer in Morocco: Epidemiological profile and diagnostic delay. Cancer Epidemiol. 2012;36(6):e349–e353. doi:10.1016/j.canep.2012.08.004
25. Tazi MA, Er-Raki A, Benjaafar N. Cancer incidence in Morocco: Casablanca registry 2008–2012. Eur J Cancer. 2013;49:S195. doi:10.1016/S0959-8049(13)70517-0
26. El Mistiri M, Verdecchia A, Rashid I, El Sahli N, El Mangush M, Federico M. Cancer incidence in Eastern Libya: The first report from the Benghazi Cancer Registry, 2003. Int J Cancer. 2007;120(2):392–397. doi:10.1002/ijc.22255
27. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2018;68(6):394–424. doi:10.3322/caac.21492
28. Torre LA, Siegel RL, Ward EM, Jemal A. Global cancer incidence and mortality rates and trends—An update. Cancer Epidemiol Biomarkers Prev. 2016;25(1):16–27. doi:10.1158/1055-9965.EPI-15-0578
29. Jemal A, Bray F, Center MM, Ferlay J, Ward E, Forman D. Global cancer statistics. CA Cancer J Clin. 2011;61(2):69–90. doi:10.3322/caac.20107
30. Ferlay J, Soerjomataram I, Dikshit R, Eser S, Mathers C, Rebelo M, et al. Cancer incidence and mortality worldwide: Sources, methods and major patterns in GLOBOCAN 2012. Int J Cancer. 2015;136(5):E359–E386. doi:10.1002/ijc.29210
31. Bray F, Ren JS, Masuyer E, Ferlay J. Global estimates of cancer prevalence for 27 sites in the adult population in 2008. Int J Cancer. 2013;132(5):1133–1145. doi:10.1002/ijc.27711
32. Curado MP, Edwards B, Shin HR, Storm H, Ferlay J, Heanue M, Boyle P, editors. Cancer Incidence in Five Continents, Vol. IX. Lyon: International Agency for Research on Cancer; 2007. IARC Scientific Publication No. 160.
33. Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F. Global Cancer Observatory: Cancer Today. Lyon: International Agency for Research on Cancer; 2020. Available from: https://gco.iarc.fr/today
34. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, Bray F. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2021;71(3):209–249. doi:10.3322/caac.21660
35. Torre LA, Islami F, Siegel RL, Ward EM, Jemal A. Global cancer in women: Burden and trends. Cancer Epidemiol Biomarkers Prev. 2017;26(4):444–457. doi:10.1158/1055-9965.EPI-16-0858
36. Ferlay J, Colombet M, Soerjomataram I, Parkin DM, Piñeros M, Znaor A, Bray F. Cancer statistics for the year 2020: An overview. Int J Cancer. 2021;149(4):778–789. doi:10.1002/ijc.33588
37. Piñeros M, Abriata MG, de Camargo Cancela M, et al. Cancer incidence estimates at the national and subnational level in Latin America. Int J Cancer. 2019;145(2):315–323. doi:10.1002/ijc.32174
38. Allemani C, Matsuda T, Di Carlo V, Harewood R, Matz M, Nikšić M, et al. Global surveillance of trends in cancer survival 2000–14 (CONCORD-3): Analysis of individual records for 37,513,025

patients diagnosed with one of 18 cancers from 322 population-based registries in 71 countries. Lancet. 2018;391(10125):1023–1075. doi:10.1016/S0140-6736(17)33326-3

39. Coleman MP, Forman D, Bryant H, Butler J, Rachet B, Maringe C, et al. Cancer survival in five continents: A worldwide population-based study (CONCORD). Lancet Oncol. 2008;9(8):730–756. doi:10.1016/S1470-2045(08)70179-7
40. de Angelis R, Sant M, Coleman MP, Francisci S, Baili P, Pierannunzio D, et al. Cancer survival in Europe 1999–2007 by country and age: Results of EUROCARE-5—a population-based study. Lancet Oncol. 2014;15(1):23–34. doi:10.1016/S1470-2045(13)70546-1
41. Sant M, Allemani C, Santaquilani M, Knijn A, Marchesi F, Capocaccia R, et al. EUROCARE-4. Survival of cancer patients diagnosed in 1995–1999. Results and commentary. Eur J Cancer. 2009;45(6):931–991. doi:10.1016/j.ejca.2008.11.018
42. Verdecchia A, Francisci S, Brenner H, Gatta G, Micheli A, Mangone L, et al. Recent cancer survival in Europe: A 2000–02 period analysis of EUROCARE-4 data. Lancet Oncol. 2007;8(9):784–796. doi:10.1016/S1470-2045(07)70246-2
43. Allemani C, Weir HK, Carreira H, et al. Global surveillance of cancer survival 1995–2009: Analysis of individual data for 25,676,887 patients from 279 population-based registries in 67 countries (CONCORD-2). Lancet. 2015;385(9972):977–1010. doi:10.1016/S0140-6736(14)62038-9
44. Coleman MP, Quaresma M, Berrino F, et al. Cancer survival in five continents: A worldwide population-based study. Lancet Oncol. 2008;9(8):730–756.
45. Karim-Kos HE, de Vries E, Soerjomataram I, Lemmens V, Siesling S, Coebergh JW. Recent trends of cancer in Europe: A combined approach of incidence, survival and mortality for 17 cancer sites since the 1990s. Eur J Cancer. 2008;44(10):1345–1389. doi:10.1016/j.ejca.2007.12.015
46. Verdecchia A, De Angelis G, Capocaccia R, Micheli A, Sant M, Gatta G, et al. The EUROCARE-3 study: Cancer survival in Europe at the end of the 20th century. Ann Oncol. 2003;14(Suppl 5):v61–v118. doi:10.1093/annonc/mdg754
47. Arbyn M, Weiderpass E, Bruni L, de Sanjosé S, Saraiya M, Ferlay J, Bray F. Estimates of incidence and mortality of cervical cancer in 2018: A worldwide analysis. Lancet Glob Health. 2020;8(2):e191–e203. doi:10.1016/S2214-109X(19)30482-6
48. Shulman LN, Willett W, Sievers A, Knaul FM. Breast cancer in developing countries: Opportunities for improved survival. J Oncol. 2010;2010:595167. doi:10.1155/2010/595167