



## Summary

Following a request received from the Minister of Health of the Union of the Comoros in January 2023, an imPACT Review was conducted from 26 November 2023 to 2 December 2023 by the [Programme of Action for Cancer Therapy \(PACT\)](#) of the International Atomic Energy Agency (IAEA), the World Health Organization (WHO) and International Agency for Research on Cancer (IARC). The imPACT Review was organized within the framework of the [WHO-IAEA Joint Programme on Cancer Control](#). A team of international experts, nominated by the IAEA, WHO and IARC, held technical discussions with key stakeholders, and visited the principal cancer facilities in the country.

## Main findings

### 1. Cancer burden

In Comoros, an epidemiological transition is taking shape, with a decline in communicable diseases such as malaria, tuberculosis and HIV/AIDS, while non-communicable diseases, including cancers, are steadily increasing. However, the absence of a specific cancer registry limits the availability of reliable data on cancer incidence and mortality. According to 2022 estimates by IARC, some 619 new cases and 418 deaths from cancer are reported each year, in a total population of 896 441. Cancer incidence is highest among women, mainly due to cervical cancer, which has an incidence of 56 per 100 000 women, one of the highest rates in the world.

### 2. Healthcare system

The Comorian healthcare system has been undergoing reform since 1994, introducing policies and standards, as well as building a partnership between the state and local communities to strengthen primary healthcare. The system is pyramidal, with central, regional and peripheral levels, each with its own administrative and healthcare structures. At central level, the country has two referral hospitals, the main one being the Centre Hospitalier National (CHN, National Hospital) El Maarouf, whose current transformation into a Centre Hospitalier Universitaire (CHU, University Hospital) should be completed in 2024, with an oncology department among other specialties. At the regional level, each island has a Reference Hospital. At the peripheral level, there are 17 health districts with medical-surgical centres and health posts.



In terms of healthcare funding, the public sector, the private non-profit sector (mainly non-governmental organizations, NGOs) and the private for-profit sector all contribute to the healthcare system. Despite an increase in the state budget allocated to health, out-of-pocket expenditures remain the main source of funding, which can lead to inequalities in access to care. Technical and financial partners, notably the World Bank and the Islamic Development Bank, support the country in financing its healthcare system, with a particular emphasis on the fight against high-burden diseases, including non-communicable diseases such as cancer.

### **3. Cancer control planning**

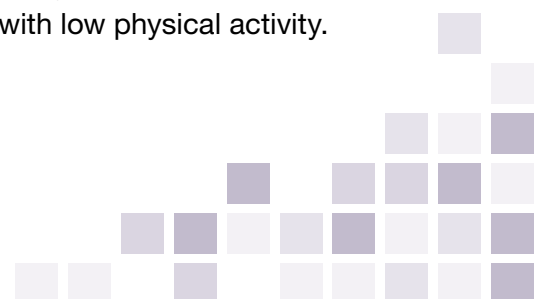
The Comorian authorities have made the fight against cancer a priority, integrating this concern into their national health strategy. Despite the current absence of a specific national programme on cancer, substantial efforts have been made to establish a solid policy framework, notably by adhering to regional declarations and collaborating with international partners such as the World Bank, the IAEA and the WHO. There is potential for enhancing national coordination by clarifying responsibilities and integrating interventions in cancer control. In addition, the development and implementation of the national policy for non-communicable disease (NCD) control (2020–2029) reflects a governmental determination to address the growing challenges posed by cancers and other NCDs.

### **4. Cancer registry and surveillance**

Cancer surveillance aims to collect, analyse and disseminate data on cancer cases to inform public health policies. Population-based cancer registries are essential for this surveillance. Currently, there is no cancer registry in Comoros, and no legal framework for its establishment. The Système National d'Information Sanitaire (SNIS, National Health Information System) does not provide sufficient data on cancer cases, and as the pathology laboratory is not functional, diagnostic data are limited. In addition, patient follow-up is inadequate due to the limited supply of local care and treatment, resulting in patients being referred abroad. Hospitals keep manual medical records, but there is no computerized filing system. A unique national identification number is also lacking; its use would enhance data management and decrease risk of duplicate cancer registrations.

### **5. Prevention**

Comoros has identified cancer as a public health priority; a formal strategy to prevent cancer can support this declaration. Although there is a plan to combat NCDs which includes prevention strategies on lifestyle risk factors broadly applicable to NCDs and cancer, cancer-specific prevention efforts are limited. Around 40% of cancers in the country may be linked to viral infections. Hepatitis B and C are major factors in liver cancer, with an estimated total prevalence in the population between 5 and 11%. Vaccination against hepatitis B is provided by the pentavalent vaccine for infants, with around 80% national coverage. There is no national programme for HPV immunization. Around 12.9% of adults (23.8% of men) smoke tobacco regularly, and around 39.4% of adults have a high body mass index (overweight or obese), with low physical activity.



## 6. Early detection

Cervical and breast cancer represent major public health challenges in Comoros. Both diseases are associated with high incidence and mortality rates and would benefit from national strategies for early detection and management of pre-cancerous and cancerous lesions. In both cases, early detection programmes can make significant impact on outcomes. Although the country has one of the highest cervical cancer burdens in the world, only 10% of eligible women in the country are screened for cervical cancer (primarily by Pap smear), below WHO recommendations. The organization of screening is marked by needs in coordination, protocol and data, as well as limited availability of equipment and treatment, in addition to a crucial need for training of healthcare personnel. There are strong efforts by civil society organizations, such as the Union Comorienne Contre le Cancer (UCCC, Comorian Union for Cancer Control) and the Association Comorienne de Lutte Contre le Cancer Chez la Femme (ACCF, Comorian Association for Control of Women's Cancers), to raise awareness and organize screening campaigns.

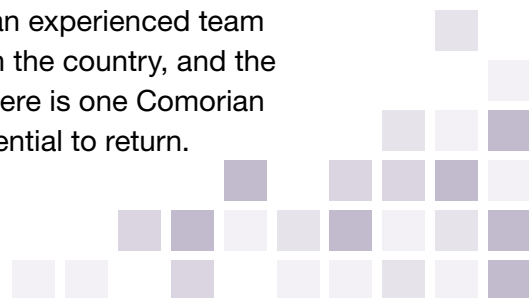
## 7. Diagnosis

Most cancers in Comoros are diagnosed at an advanced stage. The country benefits from the presence of biology and biochemistry laboratories and fully equipped radiology departments on every island in the archipelago, however more is needed regarding pathology for diagnosis. X ray and ultrasound examinations are available, but there is a shortage of mammography, particularly outside the capital, Moroni. Endoscopy and colonoscopy services are limited, with no bronchial endoscopy or mediastinoscopy. Medical referral abroad is often necessary for a precise diagnosis in the event of a suspicious mass, which impacts the timing of therapeutic management. The stability of the power supply is also a challenge in most hospitals, a requirement to ensure the continuous operation of medical imaging machines. Six radiologists are currently practicing in the country, with at least one on each island, and there is one private pathologist who performs cytologies, mainly cervical Pap smears.

## 8. Treatment

Surgical treatment remains the main therapeutic modality available in Comoros for cancer patients. However, due to the often advanced stage of diagnosis, this treatment is generally more palliative than curative. The possibility of conservative or radical surgical management of priority cancers is limited due to a lack of local expertise, although surgical practices for certain types of cancer are developing with the arrival of new specialists. The main obstacles to surgical practice include the lack of specialized human resources, the absence of national management protocols, the lack of multidisciplinary consultation meetings and the absence of pathology services in the country.

Cancer treatment in Comoros is marked by the absence of a radiotherapy. There are plans to initiate an oncology unit at CHU El Maarouf, but there are no formal plans to open a radiotherapy department. Major challenges include the absence of radiation protection legislation, the absence of an experienced team to design and monitor the implementation of radiotherapy in the country, and the lack of qualified human resources. It is noted though that there is one Comorian radiation oncologist practicing outside the country with potential to return.



There is an absence of medical oncology units in Comoros, requiring patients to be referred abroad for treatment. Major challenges include the lack of medical oncologists, oncology nurses, medical oncology training and access to anti-cancer drugs. However, strengths such as the political will to develop oncology services, the construction of a new hospital with plans for medical oncology services, and the commitment of local healthcare professionals offer opportunities to improve the situation.

## **9. Palliative care**

At present, there is no national policy on palliative care. Two physicians have obtained specialised training in palliative care, but this is insufficient to cover the needs of the population, estimated at 16 specialized doctors and 16 specialized nurses. Although morphine is on the national list of essential medicines, its supply is often inadequate, with frequent stock-outs. This situation compromises the quality of palliative care available to the population. Finally, the lack of dedicated palliative care infrastructure and the absence of home care services add to the difficulty of access to these services for patients in need.

## **10. Radiation safety**

In Comoros, the use of radiation sources is limited to diagnostic radiology. Regarding the regulatory infrastructure for radiation safety, the Comorian government has taken steps, such as a political commitment to the Code of Conduct on the Safety and Security of Radioactive Sources. A comprehensive nuclear bill is currently under discussion, aimed at establishing a legal and regulatory framework for radiation safety, with the planned creation of the Autorité de Sûreté Radiologique et de Sécurité Nucléaire (ASRSN, Authority for Radiation Safety and Nuclear Security) and the Centre des Sciences et Technologies Nucléaires (CSTN, Centre for Nuclear Science and Technology). Radiation protection training is included in training programmes for radiology technicians and radiologists. However, healthcare facilities in Comoros have no radiation protection or quality control programmes, and the lack of equipment to measure radiation exposure and the lack of individual monitoring of exposed persons are major concerns.

## **11. Security of radioactive sources**

The legislative and regulatory framework for radiation safety and nuclear security is currently being developed in Comoros, with a comprehensive nuclear bill awaiting approval. Approval of this bill will pave the way for the development of new regulations, particularly in the field of nuclear safety. Comoros' Integrated Nuclear Security Sustainability Plan (INSSP), approved in 2018 and revised in 2019, has consolidated the country's nuclear security needs. The Plan provides a framework for coordinating nuclear security activities carried out by the country, the IAEA and international partners. Comoros also benefits from the IAEA's Regulatory Infrastructure Development Project, aimed at strengthening its national regulatory infrastructure for radiation safety and radioactive material security.



# ■ Key priority recommendations

## National cancer control planning and governance

- Set up a national cancer control committee, made up of a multidisciplinary team and headed by a national focal point, responsible for drawing up a national cancer control plan for the country, implementing and monitoring/evaluating it, mobilizing the necessary human, material and financial resources and coordinating cancer control activities in the country (Reference: WHO guide to effective cancer control programmes, WHO, 2006).
- Develop a national cancer prevention and screening strategy, starting with the most common cancers (cervix, breast, liver) in the country, and include related interventions (vaccination, early detection, treatment of pre-cancerous lesions) in the primary healthcare package.
- Strengthen universal health coverage (UHC), extending it to the diagnosis and curative and palliative treatment of cancer, and accelerate its adoption at the peripheral level to enable more equitable access to quality healthcare for the population.

## Cancer registry and surveillance

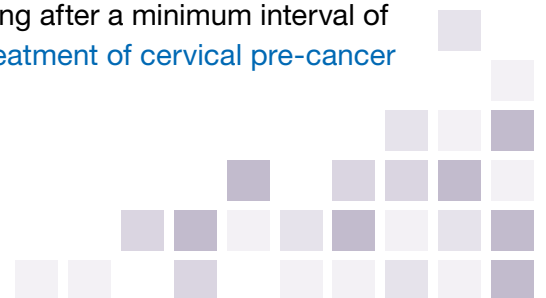
- Set up a mechanism to coordinate cancer control activities, including the cancer registry (e.g. task force under the national cancer control committee).
- Establish a legal framework for the creation, organization and operation of a population-based cancer registry in Comoros, with a sound institutional base (Reference: [Global Initiative for Cancer Registry Development \(GICR\), IARC](#)).
- Recruit or identify cancer registry staff consisting of a cancer registry director, a data manager and interviewers (ideally three interviewers).

## Prevention

- Set up a framework for coordination and integration between the players involved in cancer prevention (e.g. task force under the national cancer control committee).
- Adopt vaccination against Hepatitis B at birth in the EPI, and make it compulsory for at-risk populations through the national vaccination strategy (Reference: [Guidelines for the prevention, diagnosis, care and treatment for people with chronic hepatitis B infection, WHO, March 2024](#)).
- Introduce HPV vaccination for girls aged 9 to 15 to achieve the first 90 of the cervical cancer elimination strategy (Reference: WHO Cervical Cancer Elimination Initiative: from call to action to global movement, WHO, May 2023).

## Early detection: cervical cancer

- Initiate a pilot study on feasibility and needs of the healthcare system to establish HPV DNA testing as the primary screening method, with retesting after a minimum interval of five years (Reference: [WHO guideline for screening and treatment of cervical pre-cancer lesions for cervical cancer prevention, 2021](#)).



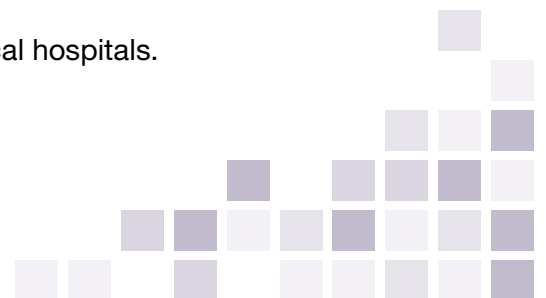
- Bring HPV self-sampling kits to communities, offering women the opportunity to be screened in the privacy of their own homes, while reducing the need for them to travel to health facilities to access screening.
- Integrate secondary prevention for cervical cancer into care centres for people living with HIV.

### Early detection: breast cancer

- Raise public awareness of breast health, and set up an early diagnosis programme that focuses on identifying people with signs and symptoms suggestive of breast cancer, and linking them with the appropriate services for correct diagnosis and prompt treatment.
- Refurbish and equip health infrastructures with tools for accurate breast cancer diagnosis (mammography, ultrasound, image-guided biopsy, pathology services with immunohistochemical analyses, etc.), and appropriate management of cases (medical and surgical oncology services, hormone therapy, etc.).
- Provide training for the existing four CT scanners, as for staging, and assess equipment age and expected renewal, including for CT scanners, in accordance with guidelines (Reference: [Renewal of radiological equipment, European Society of Radiology \(ESR\), 2014](#)).
- Set up a capacity-building programme for human resources in breast oncology.

### Diagnosis

- Open a pathology department at CHU El Maarouf and recruit at least one specialist (Reference: [Guide for establishing a pathology laboratory in the context of cancer control, 2020](#)).
- Launch a license to train senior radiology technicians at the University of Comoros.
- Provide training in basic percutaneous interventional radiology for radiologists and imaging technicians, starting with image-guided biopsies, drainages, etc.
- Provide training in MRI in anticipation for the unit in the new hospital.
- Introduce tele-radiology with partner radiology departments, with joint staff meetings and distance learning courses. This assumes basic information and communications technology (ICT) infrastructure including Picture Archiving and Communication System (PACS); preferably Hospital Information System (HIS) and Radiology Information System (RIS).
- Support training for endoscopy unit staff.
- Start tumour marker and viral load assays for patients with hepatitis (Reference: [Guidelines for the prevention, diagnosis, care and treatment for people with chronic hepatitis B infection, 2024](#)).
- Evaluate the human resources required to meet the needs of the laboratories and radiology department of CHU El Maarouf (Reference: [WHO list of priority medical devices for cancer management, 2017](#)).
- Improve the availability of blood and blood products in local hospitals.



## Treatment: surgical oncology

- Train surgeons and gynaecologists in the curative management of breast and cervical cancers.
- Adopt guidelines for the diagnostic and therapeutic management of cancers.
- Support the creation of an oncology unit at CHU El Maarouf.

## Treatment: medical oncology

- Set up a medical oncology unit (day hospitalization for chemotherapy, supportive care, conventional hospitalization) at CHU El Maarouf.
- Increase human resources (medical oncologists, specialized nurses) to lead medical oncology activities in Comoros.
- Make essential anti-cancer drugs available and accessible without delay at CHN El Maarouf (Reference: [WHO Model List of Essential Medicines – 22nd listv, 2021](#)).
- Recruit doctors, pharmacists and paramedical staff with an interest in medical oncology for short-term training courses abroad (training and refresher courses).

## Treatment: radiotherapy

- Adopt the Radiation Protection Act.
- Request an IAEA technical mission to give detailed advice on establishing radiotherapy programme in Comoros and developing a roadmap. The mission will advise on the selection of an appropriate site, construction of radiotherapy department, selection of appropriate technology and radiotherapy workforce.
- Set up a core implementation team, consisting of local and external experts. As some expertise is not locally available, a suggestion for the local core team is listed below:
  - An official from the department of health designated to oversee the project
  - A qualified radiation oncologist (e.g. a radiation oncologist from Comoros, who is employed abroad)
  - A clinically qualified radiotherapy medical physicist (e.g. two medical physicists that were trained abroad and recently returned to Comoros)
  - A qualified architect
  - An experienced project manager

External experts with expertise in setting up of radiotherapy facilities in similar settings should be recruited to assist. In all cases a local team should be designated for shadowing purposes.

- Put in place measures to ensure employment of two medical physicists (who recently returned to Comoros from training abroad) in the field of their expertise, e.g. in diagnostic radiology. They need to undergo clinical training in diagnostic radiology (IAEA can assist with the placement). In addition, they must be an integral part of the radiotherapy project core implementation team.





## Palliative care

- Raise awareness of the importance of palliative care for cancer patients.
- Lobby government and health authorities to allocate financial resources for palliative care.
- Facilitate access to essential medications for pain relief and common symptom management in palliative care (Reference: [Technical guidance: increasing access and availability of controlled medicines, 2018](#)).
- Integrate palliative care into primary health care services, hospitals and other health care facilities.

## Radiation safety

- Establish and implement a governmental, legal and regulatory framework for radiation safety, in line with IAEA safety standards (GSR Part 1, GSR Part 3, GSG-13, etc.) and the provisions of the Code of Conduct on the Safety and Security of Radioactive Sources and its Supplementary Guidance, starting with the enactment and subsequent implementation of draft legislation and regulations.
- Establish and maintain an independent regulatory body with specified responsibilities and functions, and provide it with the skills and resources necessary to carry out its duties and responsibilities.
- Optimize protection and safety against radiation exposure in facilities and during radiation activities, and control exposure through good facility design, equipment procurement, the drafting of operating procedures and staff training.
- Take steps to strengthen and maintain the skills of all parties with responsibilities for the safety of facilities and activities through technical training, apprenticeships in academic institutions and other centres of learning. In particular, provide the vocational training needed to maintain the skills of a sufficient number of suitably qualified and experienced personnel.





# ■ The WHO–IAEA–IARC joint activities on cancer control

In March 2009, WHO and IAEA signed arrangements at the Director-General level to implement a Joint Programme on Cancer Control. The main purpose of this arrangement is to coordinate activities and resources to provide evidence-based and sustainable support to comprehensive cancer control programmes, particularly in low- and middle-income countries. The imPACT Review is carried out as a comprehensive assessment of national cancer control capacities and needs. It is a partnership effort between the International Atomic Energy Agency (IAEA), the International Agency for Research on Cancer (IARC) and the World Health Organization (WHO). Where relevant, other partners are involved, such as the Union for International Cancer Control (UICC) and the United Nations Office on Drugs and Crime (UNODC). The IAEA Division of Programme of Action for Cancer Therapy (PACT) is responsible for coordinating the imPACT Reviews and for mobilizing the resources for their implementation.

Click here to read more about the imPACT mission to Comoros: [Comoros Paves the Way to Safely Introducing Oncology Services for Cancer Care in the Country](#)



**For any questions or additional information, please contact**

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