



World Health
Organization

African Region



Assessment of breast cancer control capacities in the WHO African Region in 2022



Assessment of breast cancer control capacities in the WHO African Region in 2022



ISBN: 9789290314110

© World Health Organization, 2024

Some rights reserved. This work is available under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; <https://creativecommons.org/licenses/by-nc-sa/3.0/igo>).

Under the terms of this licence, you may copy, redistribute and adapt the work for non-commercial purposes, provided the work is appropriately cited, as indicated below. In any use of this work, there should be no suggestion that WHO endorses any specific organization, products or services. The use of the WHO logo is not permitted. If you adapt the work, then you must license your work under the same or equivalent Creative Commons licence. If you create a translation of this work, you should add the following disclaimer along with the suggested citation: “This translation was not created by the World Health Organization (WHO). WHO is not responsible for the content or accuracy of this translation. The original English edition shall be the binding and authentic edition”.

Any mediation relating to disputes arising under the licence shall be conducted in accordance with the mediation rules of the World Intellectual Property Organization.

Suggested citation. Assessment of breast cancer control capacities in the WHO African Region in 2022. Brazzaville: WHO African Region, 2024. Licence: [CC BY-NC-SA 3.0 IGO](https://creativecommons.org/licenses/by-nc-sa/3.0/igo).

Cataloguing-in-Publication (CIP) data. CIP data are available at <http://apps.who.int/iris>.

Sales, rights and licensing. To purchase WHO publications, see <http://apps.who.int/bookorders>. To submit requests for commercial use and queries on rights and licensing, see <http://www.who.int/about/licensing>.

Third-party materials. If you wish to reuse material from this work that is attributed to a third party, such as tables, figures or images, it is your responsibility to determine whether permission is needed for that reuse and to obtain permission from the copyright holder. The risk of claims resulting from infringement of any third-party-owned component in the work rests solely with the user.

General disclaimers. The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by WHO in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by WHO to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall WHO be liable for damages arising from its use.

All photos: ©WHO

Designed in Brazzaville, Republic of Congo



Contents

vi	Foreword	6	Data and methods
vii	Acknowledgements	7	Results
viii	Abbreviations	39	Situation interpretation
ix	Glossary	46	Conclusions
x	Executive summary	47	Recommended actions
1	Background	49	References
5	Objectives	51	Annexes



List of figures

	Pages
Fig. 1. Breast cancer age-standardized rate (world) per 100 000,	1
Fig. 2. Breast cancer incidence in the WHO African Region.....	2
Fig. 3. Breast cancer mortality in the WHO African Region.....	4
Fig. 4. Responding countries, by WHO African sub-Regions.	7
Fig. 5. Number of countries with cancer focal point and national cancer control plan	8
Fig. 6. Existence of a cancer focal point at ministry of health.....	9
Fig. 7. Existence of organized breast cancer screening or early detection programme.	10
Fig. 8. Methods used for breast cancer screening and early diagnosis.	10
Fig. 9. Number of countries per subregion that reported methods used for breast cancer	11
Fig. 10. Availability of national treatment guidelines for breast cancer.....	12
Fig. 11. Availability of rehabilitation policy for cancer survivors.	13
Fig. 12. Countries of the WHO African Region with free cancer care policy.....	14
Fig. 13. Financing status of cancer plan.	15
Fig. 14. Countries' scores for leadership, governance and financing.	16
Fig. 15. Number of pathology laboratories.	17
Fig. 16. Availability of immunohistochemistry.	18
Fig. 17. Turnaround time of pathology results.	19
Fig. 18. Mammography devices in countries.....	20
Fig. 19. Functional CT scan.	21
Fig. 20. Functional MRI machines.....	22
Fig. 21. Functional nuclear medicine services.....	23
Fig. 22. Breast cancer treatment services.	24
Fig. 23. Cancer centres in the WHO African Region (both public and private).	24
Fig. 24. Availability of chemotherapy.	25
Fig. 25. Availability by type of radiotherapy machine.	26
Fig. 26. Availability of palliative care services.....	27
Fig. 27. Country scores regarding service delivery.	28
Fig. 28. Availability of training centres in cancer diagnosis and treatment.	29
Fig. 29. Training available in oncology in countries by language area.	30
Fig. 30. Availability of human resources by specialty per 100 000 inhabitants.....	31
Fig. 31. Countries' scores for health workforce capacity.....	32





Fig. 32. Availability of cancer registration in the Region. 33

Fig. 33. Scoring for health information system..... 34

Fig. 34. Availability and access to oral morphine. 35

Fig. 35. Country overall score combining leadership and governance, health workforce, 36

Fig. 36. Regional scores for various capacities in breast cancer control. 37

Fig. 37. Correlation matrix from the principal component analysis..... 38

Fig. 38. WHO Health Systems Framework. 39

Fig. 39. Components of cancer control and the role of pathology. 42

Fig. 40. Schematic representation of the elements of a cancer centre WHO-IAEA framework.....44

List of tables

Table 1. Estimated number of new cases (incidence) of breast cancer from 2020 to 2040,.....3

Table 2. Estimated number of breast cancer deaths from 2020 to 2040 among females.....4



Foreword

Breast cancer remains a significant public health challenge worldwide. In sub-Saharan Africa, this challenge is especially urgent, as breast cancer is the most common and deadly cancer among women in the region. Tragically, many women are diagnosed at advanced stages due to limited access to screening, early diagnosis, and quality care. Early detection can drastically improve treatment outcomes and recovery rates, making it essential to strengthen breast cancer prevention and care across the region.

In 2017, World Health Assembly resolution WHA70.12 called upon Member States to integrate cancer prevention and control into their national responses to noncommunicable diseases, aligned with the 2030 Agenda for Sustainable Development. Responding to this call, the World Health Organization (WHO) launched the Global Breast Cancer Initiative (GBCI) in 2021. This initiative aims to reduce global breast cancer mortality by 2.5% annually through 2040, with a goal of preventing 2.5 million deaths. The GBCI provides evidence-based guidelines structured around three critical pillars: health promotion, early diagnosis, comprehensive treatment including palliative care. In 2023, WHO introduced an implementation framework to guide countries in translating these pillars into actionable strategies.

For countries to effectively implement these guidelines, it is crucial to understand their existing capacities, identify gaps, and explore feasible solutions. This regional assessment of breast cancer diagnosis and care access provides valuable insights into the current situation, highlighting the challenges and opportunities for improvement. The findings will serve as a foundation for targeted interventions, enabling countries and their technical and financial partners to collaboratively address barriers to quality cancer care.

I would like to commend the ministries of health that participated in this survey and encourage all partners and stakeholders to use this report as a strategic guide to reduce the burden of breast cancer and improve women's health in Africa. Together, let us commit to reducing the impact of breast cancer and ensuring that women across the region could lead healthy, fulfilling lives.



Dr Matshidiso Moeti
WHO Regional Director for Africa
Brazzaville



Acknowledgements

This report is the result of intensive collaboration involving many colleagues. We would like to thank all contributors.

Coordination

Benido Impouma, Akpaka Kalu

Lead writers

Issimouha Dille Mahamadou

Roland Ngom

Data analysis

Roland Ngom

Terence Totah

Cheick Bady Diallo

Issimouha Dille Mahamadou

Technical review

The following colleagues provided technical review (listed in alphabetical order):

Sharon Kapambwe, Lawrence Kazembe, Kofi Mensah Nyarko, Farham Bridget Lindsay

This work would not have been possible without the valuable contribution of WHO Representatives and WHO Country Offices teams in the African Region, as well as various ministries of health.

Access the report website and dashboards

A website for the report was developed and can be accessed here: <https://arcr.is/0eyLXG>

This enables more interaction and availability of information, maps, and charts.



Abbreviations

CBE	clinical breast examination
CHW	community health worker
GBCI	Global Breast Cancer Initiative
HIS	health information systems
HSS	health systems strengthening
HWF	health workforce
IAEA	International Atomic Energy Agency
IST	intercountry support team
KPI	key performance indicator
LGF	leadership/governance/financing
MoH	ministry of health
MRI	magnetic resonance imaging
NCD	noncommunicable disease
NCCP	national cancer control plan
NGOs	nongovernmental organizations
SD	service delivery
UHC	universal health coverage
WHO	World Health Organization
WHA	World Health Assembly



Glossary

CT scan: A procedure that uses a computer linked to an x-ray machine to make a series of detailed pictures of areas inside the body [1].

Chemotherapy: Treatment that uses drugs to stop the growth of cancer cells, either by killing the cells or by stopping them from dividing [1].

Immunohistochemistry: A laboratory method that uses antibodies to check for certain antigens (markers) in a sample of tissue [1].

Mammography: The use of film or a computer to create a picture of the breast [1].

Oncology: A branch of medicine that specializes in the diagnosis and treatment of cancer [1].

Radiotherapy: The use of high-energy radiation from x-rays, gamma rays, neutrons, protons, and other sources to kill cancer cells and shrink tumours [1].

MRI: A procedure that uses radio waves, a powerful magnet, and a computer to make a series of detailed pictures of areas inside the body [1].

Pet scan: A procedure in which a small amount of radioactive glucose (sugar) is injected into a vein, and a scanner is used to make detailed, computerized pictures of areas inside the body where the glucose is taken up. Because cancer cells often take up more glucose than normal cells, the pictures can be used to find cancer cells in the body. Also called positron emission tomography scan [1].

Plan: A set of intended actions that are expected to achieve a specified goal within a certain time frame
“A good plan is like a road map: it shows the final destination and usually the best way to get there.”



Executive summary

Background

Breast cancer is the leading cause of cancer-related deaths among women globally. In 2022, there were 2.3 million new cases and over 666 000 deaths worldwide, with sub-Saharan Africa contributing 146 130 cases and 71 662 deaths. The Region faces rapid increases in breast cancer incidence and mortality, with projected rises of 85.7% in new cases and 89% in deaths by 2040. Low survival rates, often below 50%, are primarily due to late-stage diagnoses and inadequate health care infrastructure. A regional survey was conducted to assess the situation of access to breast cancer diagnosis and care. The results will help countries and their technical and financial partners to better understand and address the challenges and gaps in cancer care and to develop a plan for specific interventions.

Objectives

This study assessed breast cancer control capacities in the 47 countries of the WHO African Region. The main objective was to evaluate countries and regional capacity in leadership, governance, and financing (LGF), health workforce (HWF), health information systems (HIS), and service delivery (SD), following the WHO's six building blocks. A survey was successfully conducted for 42 countries out of 47. A scoring method was developed to summarize survey results and rank countries across each of the capacity categories (HWF, HIS, LGF, SD) and statistical analyses were performed to assess any differences by subregions (West, Central, East and Southern Africa).

“ In 2022, there were 2.3 million new cases and over 666 000 deaths worldwide, with sub-Saharan Africa contributing 146 130 cases and 71 662 deaths. ”

Key findings

- Service availability and readiness to offer services for breast cancer control are influenced by many factors including trained health workforce. The lowest capacity of HWF was observed in the Region across all professional categories. Significant shortages of oncologists, nurses, and surgeons were noted. However, oncology training was available in 34 countries.
- **Service delivery (SD)** was the highest capacity compared to other domains assessed. The public sector has 61% of pathology services in the countries that participated to the survey. Most countries (88.1%) could access chemotherapy; However, only 20 countries had specialized cancer centres and less than half (42.9%) had the necessary equipment for radiotherapy.
- **Health information system (HIS)** analysis showed availability of population-based cancer registries reported in 24 (57.1%) countries, while 30.9% had electronic registration system like DHIS2.
- **Leadership, governance, and financing (LGF):** less than half (42.9%) of the countries had a national cancer control plan (NCCP); 80.9% had a cancer focal point in the ministry of health. Only five countries had organized screening programmes. Results of statistical analysis suggested a key role of LGF in driving the stronger performances in the other domains (HIS, HWF and SD).
- **Overall country capacity and support in the Region:** the highest scores were reported in Kenya, Nigeria, and Algeria. Guinea Bissau, Sao Tome and Comoros had the lowest scores.

- Assessing country capacities and disease burden, we found no statistically significant relationship between the various studied domains and breast cancer burden.

Conclusion and recommendations

Significant gaps and disparities exist in breast cancer control capacities across the WHO African Region. Targeted interventions starting with the enforcement of leadership, governance and financing are needed to improve strategic planning, health care infrastructure, workforce training, and access to essential services.

Key Recommendations

1. Develop and fund comprehensive national cancer control plans (NCCPs).
2. Address workforce shortages and improve oncology training programmes.
3. Implement organized breast cancer screening and early diagnosis programmes.
4. Expand access to pathology, imaging, radiotherapy, and chemotherapy services.
5. Strengthen health information systems and population-based cancer registries.
6. Ensure availability and affordability of essential medicines.

“ Targeted interventions starting with the enforcement of leadership, governance and financing are needed to improve strategic planning, health care infrastructure, workforce training, and access to essential services.”

”

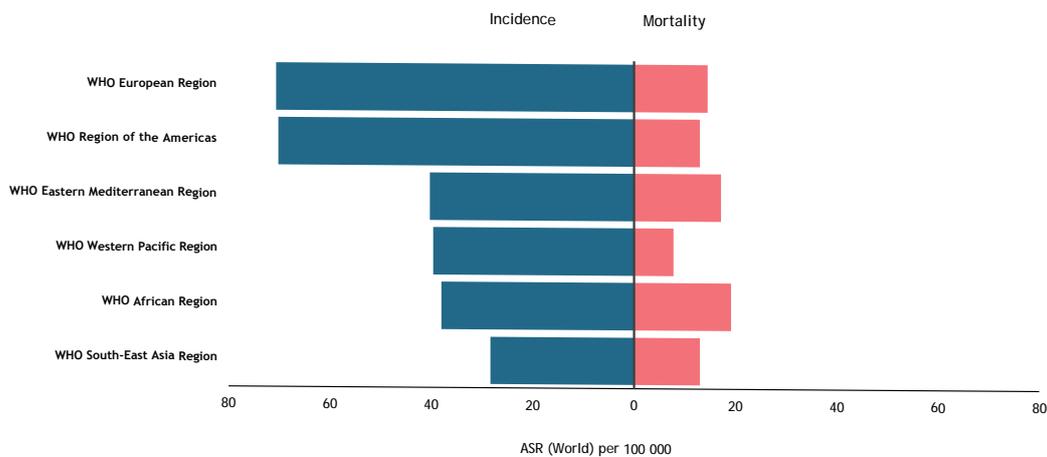


1. Background

Breast cancer is a common public health problem globally. In 2022, there were 2 296 840 million new breast cancer cases and 666 103 deaths globally [2]. By the end of 2022, the age-standardized incidence rate was 54 per 100 000 women, while ASR mortality was 12 per 100 000 women, making it the most prevalent cancer, accounting for nearly 12% of all cancer cases worldwide, and the top cause of death from cancer in women globally [3]. The incidence of disease and deaths attributed to breast cancer is increasing. Most of the breast cancer cases and deaths today happen in low- to middle-income countries (LMIC), because of weak health systems. The burden is projected to increase by 2040, where 60% of the 3 million new breast cancer cases and 70% of the 1 million new yearly deaths will occur in LMICs [4]. In LMICs, the survival rates range between 40% and 70%. Generally, 50%-70% of patients are at an advanced-stage disease, contributing to high mortality rates [5].

The age-adjusted five-year survival rate for people diagnosed with cancer from 2008 to 2015 in 12 countries in sub-Saharan Africa was 66% [6], but this varied across the countries. For example, in South Africa this was below 40%, while in Mali and The Gambia it was reported at below 20%. The main cause of the low survival rates in sub-Saharan Africa is that people seek health care late [6]. A report that reviewed 83 studies from 17 countries in sub-Saharan Africa found that 77% of all cases that had staging information were stage III/IV when diagnosed [6]. The five-year survival estimates are around or under 50%, which means that half of the women who had the disease died within five years of being diagnosed. Half of these deaths occur before age 50, which affects society because 100 cancer deaths at this age leave behind an average of 210 motherless children [5]. In 2022, breast cancer incidence in the African Region was 38.0 per 100 000 and the mortality was 19.2 per 100 000 [4]. Despite being the region with the lowest incidence, the African Region has the highest mortality (Fig. 1).

Fig. 1. Breast cancer age-standardized rate (world) per 100 000, incidence and mortality, among females in 2022 per WHO Region



Data sources: Cancer TODAY | IARC 2022
 (<https://gco.iarc.who.int/today>)
 Regional office for Africa
 World Health Organization
 © WHO 2024. All rights reserved.



In the year 2022, within the WHO African Region, breast cancer incidence rates varied considerably, ranging from 61.87 per 100 000 in Algeria to as low as 7 per 100 000 in Sierra Leone. This Region alone accounted for 8.6% of new breast cancer cases globally, as depicted in Fig. 2.

The projected data indicates a significant increase in the annual number of women diagnosed with breast cancer in sub-Saharan Africa, with expectations to nearly double by

the year 2040, as shown in Table 1. This rising burden is mainly attributed to demographic shifts such as population aging and expansion (7,8). Additionally, both breast and cervical cancers are influenced by exposure to oncogenic risk factors, which also contribute to the regional disease burden (9,10) priority setting, and budgeting have been identified as major obstacles in achieving these goals. All of these have in common that they require information on the local cancer epidemiology. The Global Burden of Disease (GBD).

Fig. 2. Breast cancer incidence in the WHO African Region

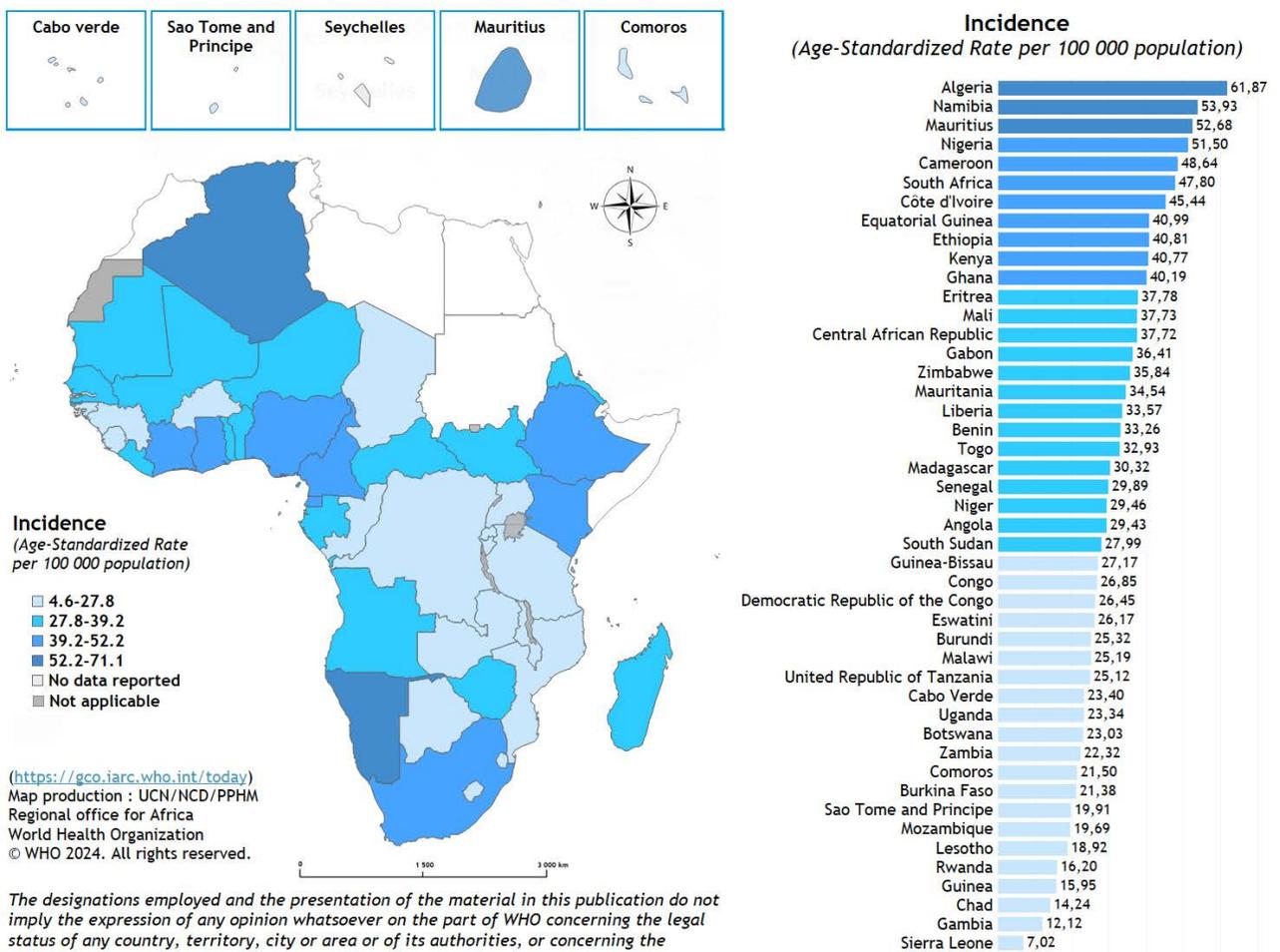


Table 1: Estimated number of new cases of breast cancer from 2020 to 2040, incidence, females, age [0-85+] [Cancer Tomorrow \(iarc.fr\)](http://CancerTomorrow.iarc.fr)

Population	Annual population		Number of new cases		Change in number of cases
	2020	2040	2020	2040	
Africa	670 719 755	1 037 977 445	186 598	346587	+85.7%
Asia	2 266 988 920	2 549 164 928	1 026 171	1 416 478	+38.0%
Europe	387 178 922	375 235 808	531 086	568 439	+7.0%
Latin America and Caribbean	332 333 579	377 868 643	210 100	314 356	+49.6%
Northern America	186 289 122	206 885 514	281 591	343 676	+22.0%
Oceania	21 314 480	26 418 428	25 873	35 935	+38.9%
Totals	3 864 824 778	4 573 550 766	2 261 419	3 025 471	+33.8%

Regarding breast cancer mortality in 2022 within the WHO African Region, the rates varied, with the highest being 27.44 per 100 000 in Cameroon and the lowest at 4.22 per 100 000 in Sierra Leone, as illustrated in Figure 3. Mortality rates in sub-Saharan Africa have increased and are now among the highest globally (Table 2), reflecting the weaknesses of health systems and, consequently, poor survival outcomes.

The WHO Global Breast Cancer Initiative (WHO GBCI) Implementation Framework, launched in 2021 [11], tasks stakeholders from across the world and sectors to lower global breast cancer mortality by 2.5% yearly, preventing 2.5 million deaths from 2020 to 2040. It advocates for strategic investments in health systems, founded on established principles of health promotion for early detection, timely diagnosis, and access to comprehensive management as part of universal health coverage. The Framework has three pillars: health promotion, timely diagnosis, and comprehensive management. It proposes, first that an assessment be done, which would inform strategies for strengthening and scaling up services for the early detection and management of breast cancer. The GBCI framework presents a plan of action for developing key strategies that can work immediately for countries at different stages of their health systems. By using a gradual, resource-suitable approach based on enhancing health systems, and shaped by women's health and gender equality, we can boost the health and well-being of women, families, and communities for future generations.

However, there is no information on the status of breast cancer control and the country capacity in the various Member States in the African Region. Information on the current status of breast cancer control in the Region will provide the needed information for decision making.

“ The WHO Global Breast Cancer Initiative (WHO GBCI) Implementation Framework, launched in 2021(11), tasks stakeholders from across the world and sectors to lower global breast cancer mortality by 2.5% yearly, preventing 2.5 million deaths from 2020 to 2040. ”

Fig. 3. Breast cancer mortality in the WHO African Region

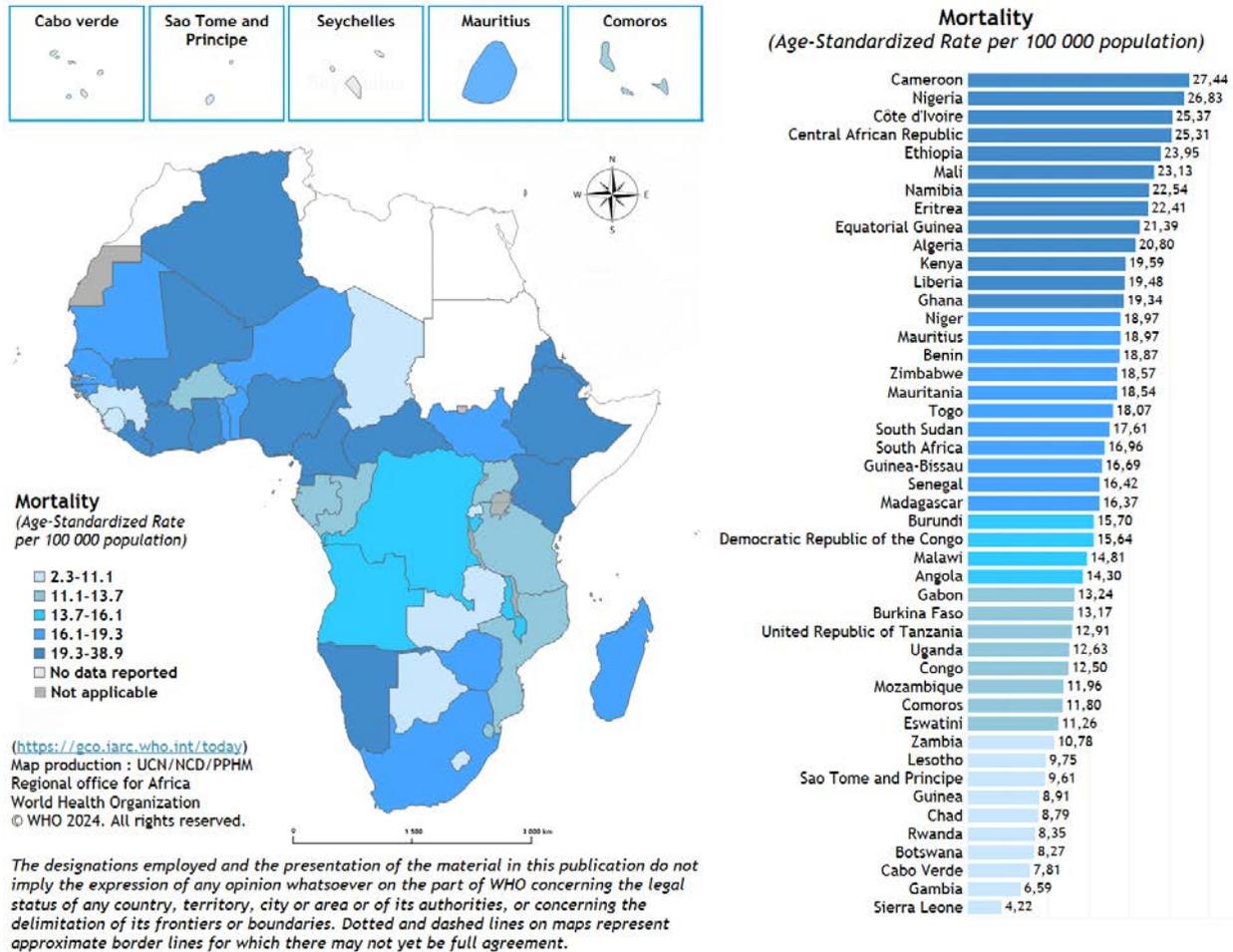


Table 2: Estimated number of breast cancer deaths from 2020 to 2040, mortality, females, age [0-85+] (Cancer Tomorrow (iarc.fr))

Population	Annual population		Number of deaths		Change in number of cases
	2020	2040	2020	2040	
Africa	670719755	1 037 977 445	85 787	162 095	+89.0%
Asia	2 266 988 920	2 549 164 928	346 009	535 099	+54.6%
Europe	387 178 922	375 235 808	141 765	170 992	+20.6%
Latin America and Caribbean	332 333 579	377 868 643	57 984	94 559	+63.1%
Northern America	186 289 122	206 885 514	48 407	67 216	+38.9%
Oceania	21 314 480	26 418 428	5 044	7 762	+53.9%
Totals	3 864 824 778	4 573 550 766	684 996	1 037 723	+51.5%



2. Objectives

The main objective of this study was to produce a landscape of availability of frameworks, policies, human resources and equipment and delivery for breast cancer diagnosis and care in the 47 countries of the WHO African Region. Specific objectives are as follows:

1. To assess leadership, governance, and financing (LGF) in the countries of the WHO African Region regarding breast cancer prevention, diagnosis, and care.
2. To assess health workforce (HWF) in the countries of the WHO African Region regarding cancer prevention diagnosis and care.
3. To assess health information systems (HIS) in the countries of the WHO African Region in terms of cancer registration.
4. To assess service delivery (SD) in the countries of the WHO African Region regarding cancer diagnosis and care.
5. To assess the statistical relationship between LGF, HWF, HIS, SD and breast cancer mortality rates in the countries of the WHO African Region.

Results will enable countries and their technical and financial partners to better understand the challenges and gaps in breast cancer secondary prevention, diagnosis, and care in the Region and to develop a roadmap for targeted interventions.



3. Data and methods

An online questionnaire was developed in the three official languages of the WHO African Region and distributed to the 47 Member States, in October 2021, through the WHO Country Offices. The survey questionnaire was structured into five sections with the objective of assessing breast cancer control efforts in the WHO six building blocks of the health system:

1. Leadership, governance
2. Health financing
3. Service delivery,
4. Health workforce
5. Health information systems
6. Access to essential medicines.

Follow-up calls were conducted with countries to improve the participation rate. The survey closed in July 2022. Initial data validation then followed. Responses were validated by the WHO Regional Office for Africa through cross-checking with existing data, documentation, and bilateral discussions with respondents to resolve discrepancies.

Data analysis was based on the WHO six building blocks: leadership/governance and financing (LGF), service delivery (SD), health workforce (HWF), health information systems (HIS), and access to essential medicines. Scores were calculated to summarize multiple indicators for each of these categories. We adopted a 0-1 scoring, with a 1 if the item was available, and 0 if not available. In some instances, the scoring criteria was based on exceedance of an established WHO standard. For example, a score value of 1 was assigned to a country that exceeded 50 nurses per 100 000 population or two mammography facilities per 100 000 population. Otherwise, a value of zero was assigned. Then an overall score was computed for each domain for each country.

Statistical analyses, including correlation tests and principal component analysis (PCA), were conducted to explore relationships between survey indicators and breast cancer mortality rates, and between the different sectors previously mentioned. Details on the methodology are provided in the annexes.

“ **The WHO Global We adopted a 0-1 scoring, with a 1 if the item was available, and 0 if not available. In some instances, the scoring criteria was based on exceedance of an established WHO standard.** ”



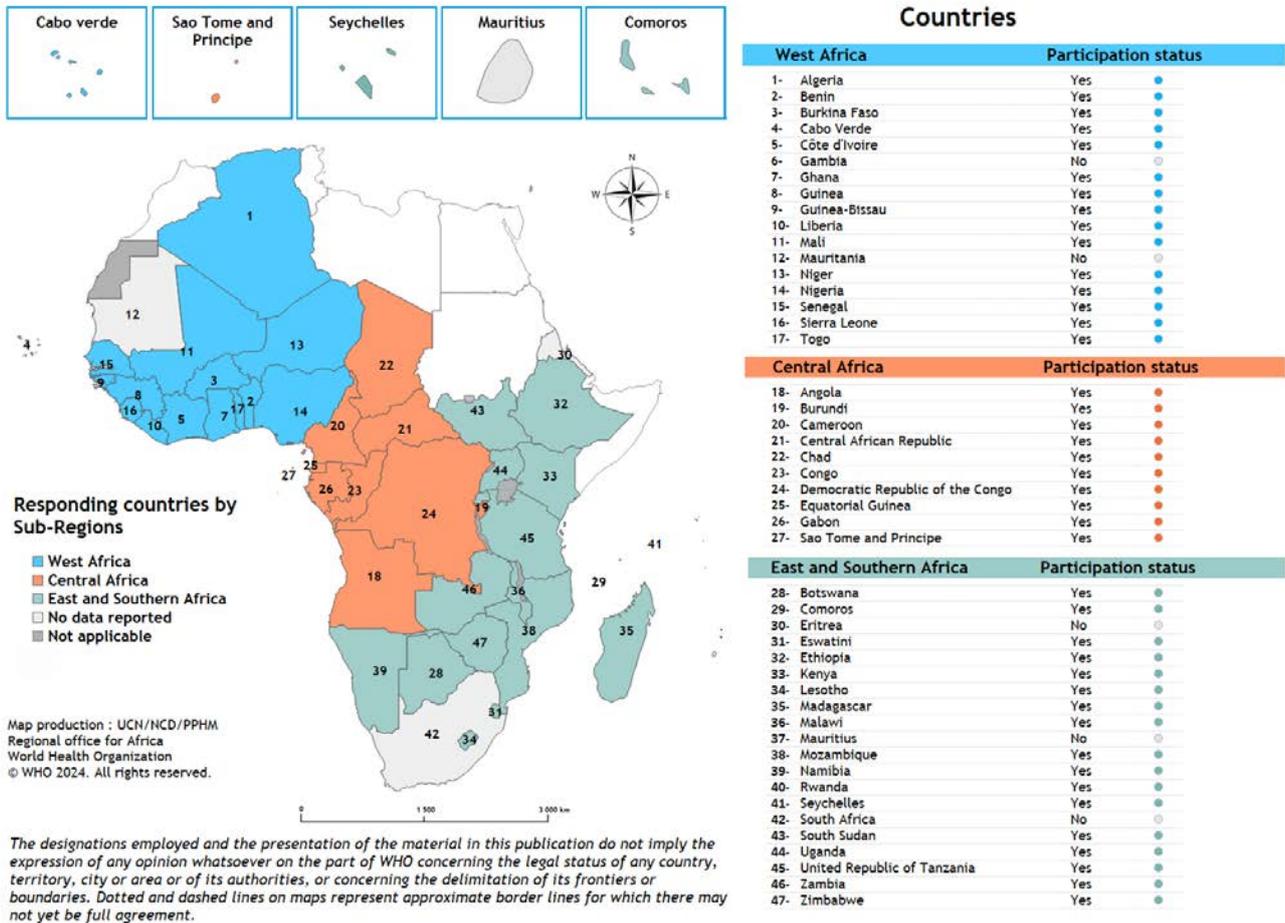
4. Results

4.1. Participation rate

Of the 47 countries in the African Region, 42 (89.36%) responded to the questionnaire. The countries that did not participate include Eritrea,

Gambia, Mauritius, Mauritania, and South Africa, as detailed in Fig. 4.

Fig. 4. Responding countries, by WHO African Region: subregions



4.2. Cancer control leadership, governance, and financing

Cancer control planning is necessary in any resource setting to respond to the cancer needs in populations by preventing cancer, detecting it early, curing it and caring for people affected by it [12]. Population-based screening programmes are central to this effort, involving the identification of target groups, inviting them for screening, and using databases to monitor outcomes. With the rise in global cancer cases and the push for universal health coverage, some countries have enacted laws to provide free cancer coverage. The World Health Organization (WHO) defines rehabilitation as a set of interventions designed to optimize functioning and reduce disability in individuals with health conditions, in interaction with their environment. Rehabilitation can

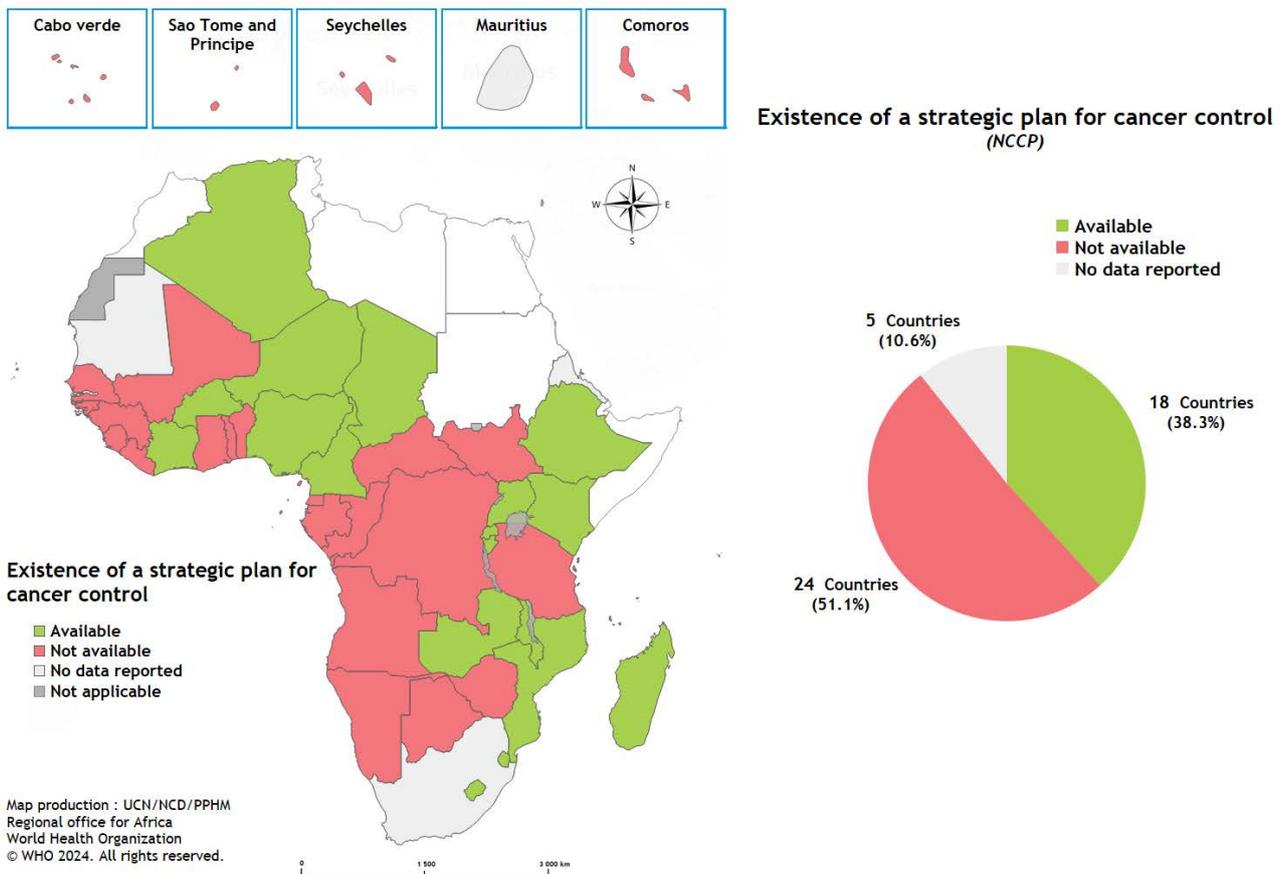
reduce the impact of a broad range of health conditions, including diseases (acute or chronic), illnesses or injuries. It complements other health interventions, such as medical and surgical interventions, helping to facilitate recovery and achieve the best outcome possible [13]. This programme has several components, which are proposed according to the type of disease and the specific needs of each patient.

4.2.1. Existence of a strategic plan for cancer control in the country

Regarding the cancer plan, 24 of the responding countries lacked a national strategic cancer control plan (NCCP). Conversely, 18/42 (42.85%) either had an NCCP in place or were in the process of developing or updating their cancer plan.

Detailed information on this is provided in Fig. 5.

Fig. 5. Availability of national strategic cancer control plan (NCCP)



The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

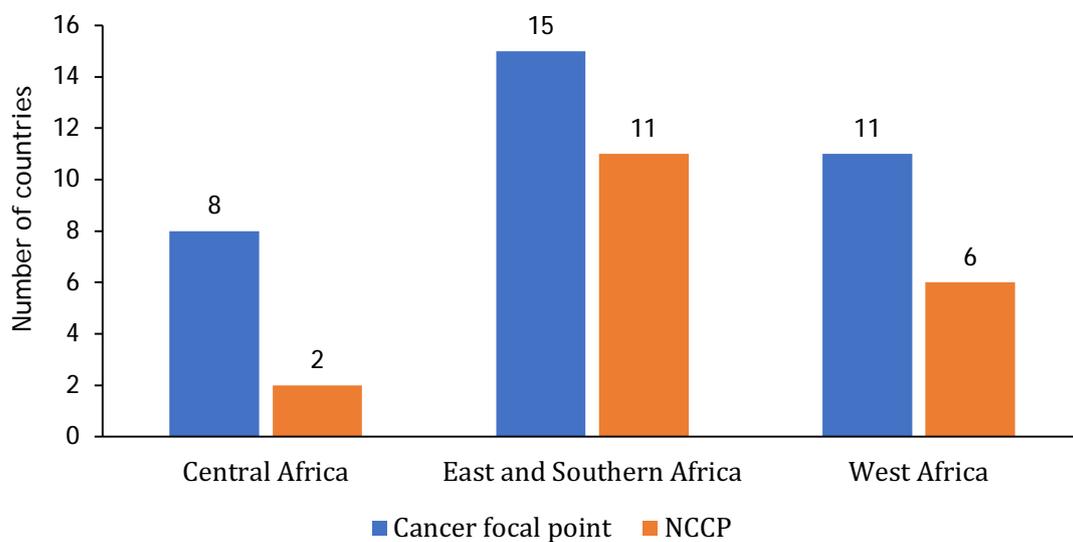


4.2.2. Existence of a cancer focal point at the ministry of health

All countries had a focal point at the national level responsible for noncommunicable diseases. However, 34 countries out of 42 (80.95%) reported having a cancer focal point within the ministry of health (Fig. 6) in addition to having a programme for noncommunicable diseases. The Eastern and

Southern Africa (ESA) subregion had the most reported focal points in the ministry of health. Of the 42 countries, the following eight countries reported not having a focal point: Comoros, Côte d'Ivoire, Equatorial Guinea, Guinea-Bissau, Niger, South Sudan, Togo, and United Republic of Tanzania. About the NCCP, only 18 countries had plans. Again, most of these countries were in the ESA subregion (n=11), followed by West Africa (n=6).

Fig. 6. Number of countries with cancer focal point and national cancer control plan (NCCP) at ministry of health



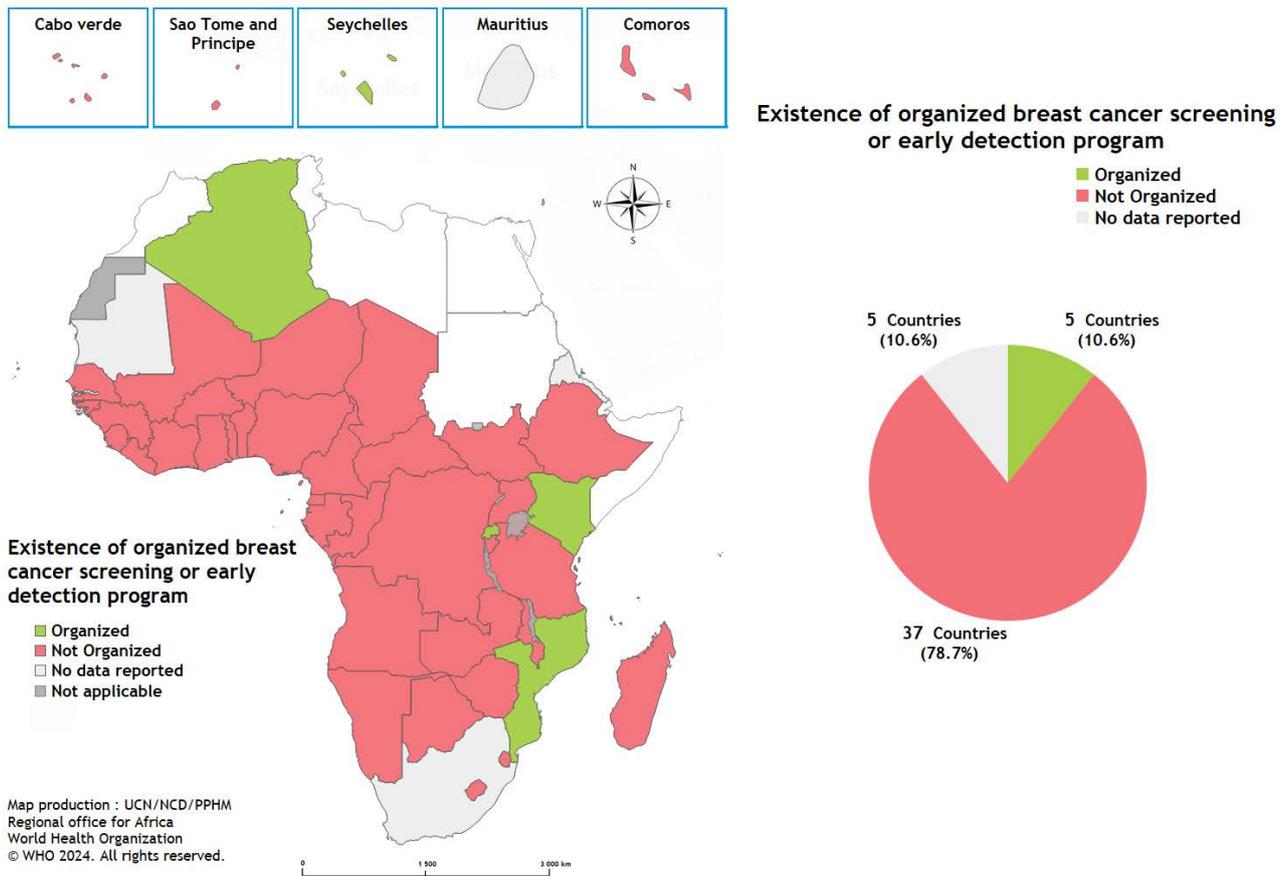
4.2.3. Existence of an organized breast cancer screening and/or early diagnosis programme

Breast cancer screening and/or early diagnosis occurs in 88% of countries opportunistically (non-organized) (37/42). Only five countries reported having an organized programme (Fig. 7). They are Algeria, Kenya, Mozambique, Rwanda, and

Seychelles. However, the definitions of “early diagnosis programmes” [11], ‘opportunistic screening programmes’ and ‘population-based screening programmes’ used were inconsistent and more investigation is required to better understand what is happening on the ground in each country.



Fig. 7. Existence of organized breast cancer screening or early detection programme

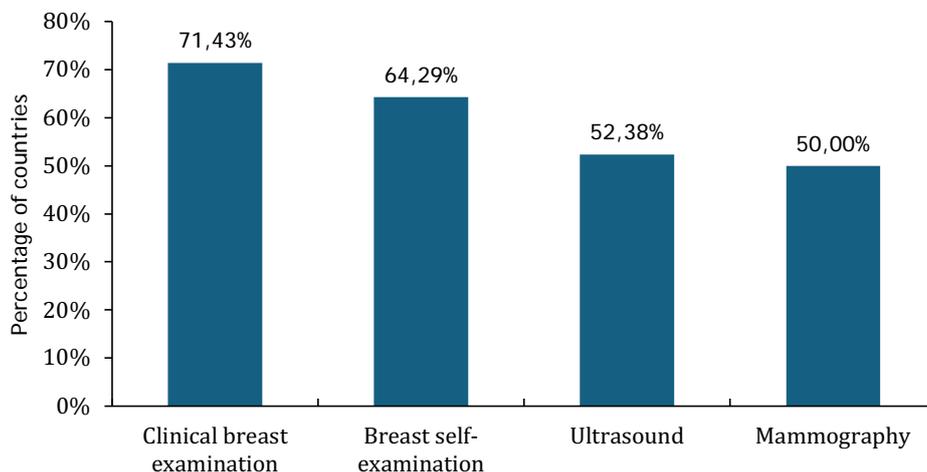


The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

The methods used for screening/early detection for breast cancer in the African Region were not standardized. Several methods were used, i.e., 71.43% of the countries are using clinical breast examination (CBE), 64.29% breast self-

examination (BSE), 52.38% using ultrasound plus or minus mammography and 50.00% are using mammography (Fig. 8).

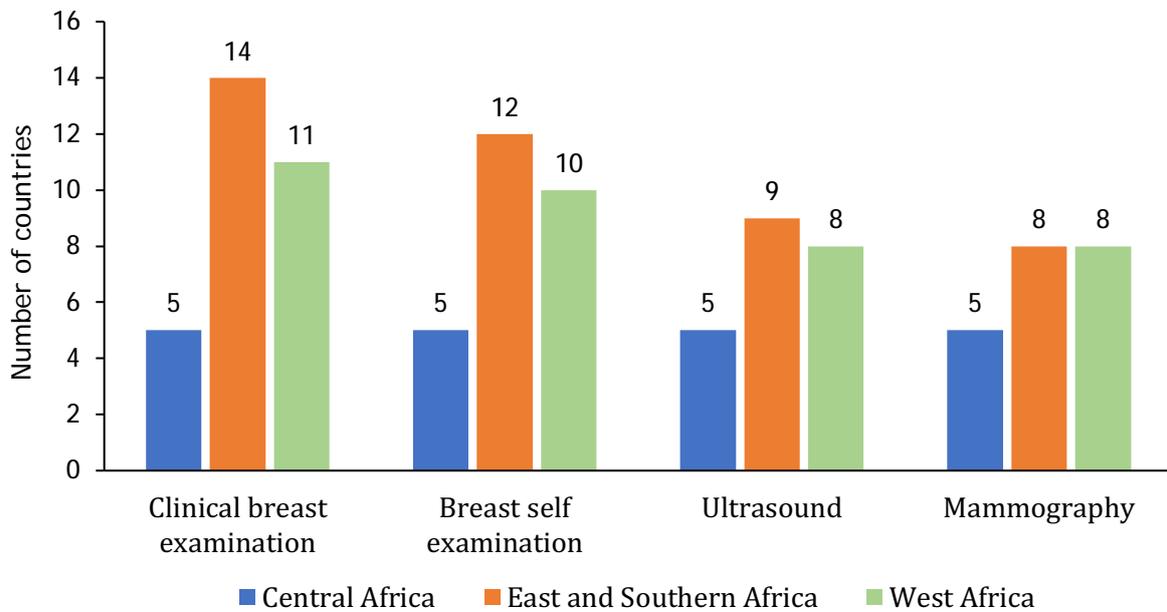
Fig. 8. Methods used for breast cancer screening and early diagnosis.



On average, the mean number of countries engaged in breast cancer screening varied. The highest was in ESA with 46.6 (14 countries), followed by West Africa at 33.7 ($n=11$). A similar

pattern is seen for breast self-examination, ultrasound and mammography (Fig. 9). In Central Africa, we observe that it is the same five (50%) that reported use of the screening methods.

Fig. 9. Number of countries per subregion that reported methods used for breast cancer screening



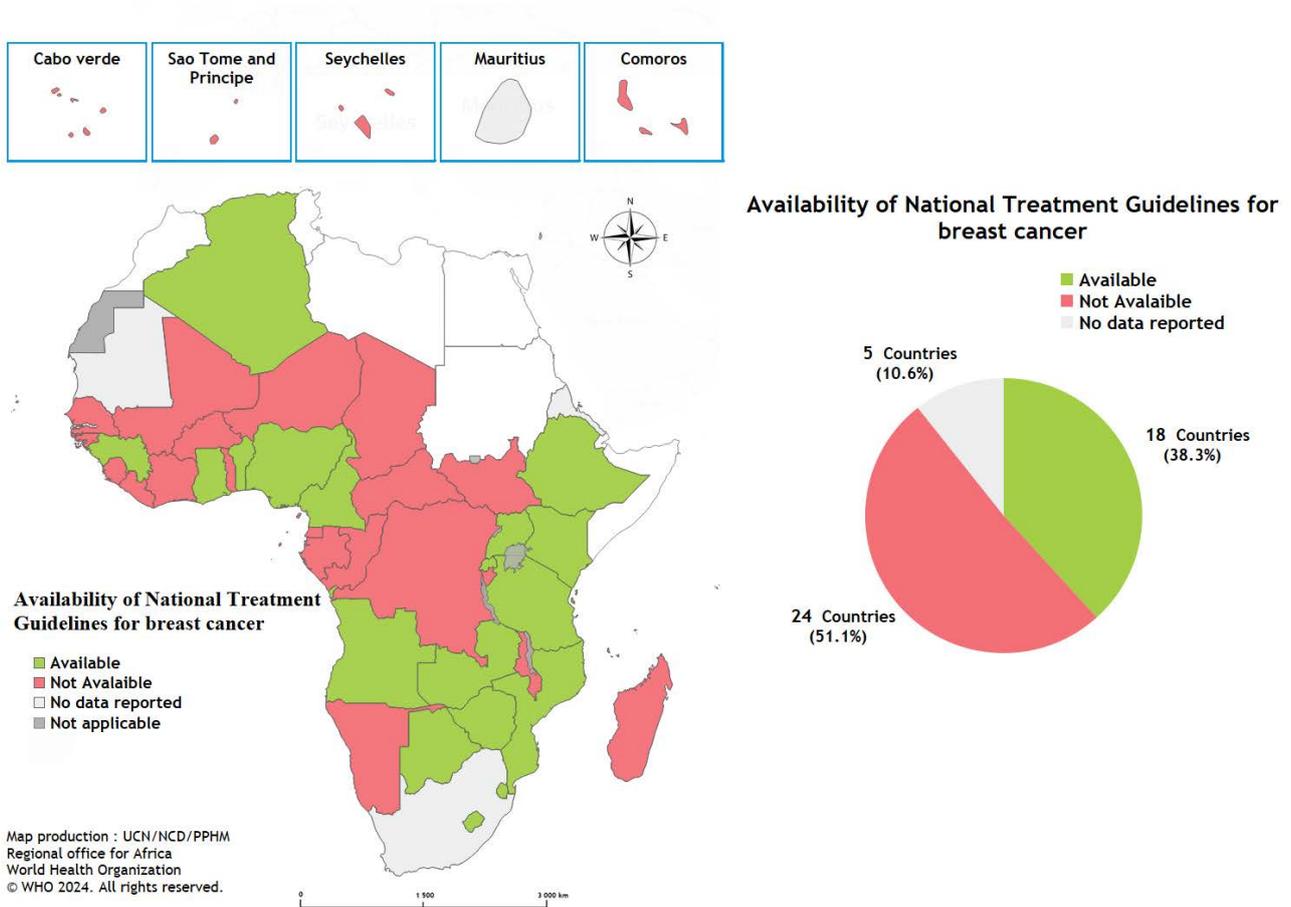
4.2.4. National treatment guidelines for breast cancer

Standardized treatment and management guidelines, when adopted at national level, generally help to standardize, and improve

the response to and control of the disease in a country. Treatment guidelines for breast cancer management are available in 18 countries, particularly in Eastern and Southern Africa (Fig. 10).



Fig. 10. Availability of national treatment guidelines for breast cancer



The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

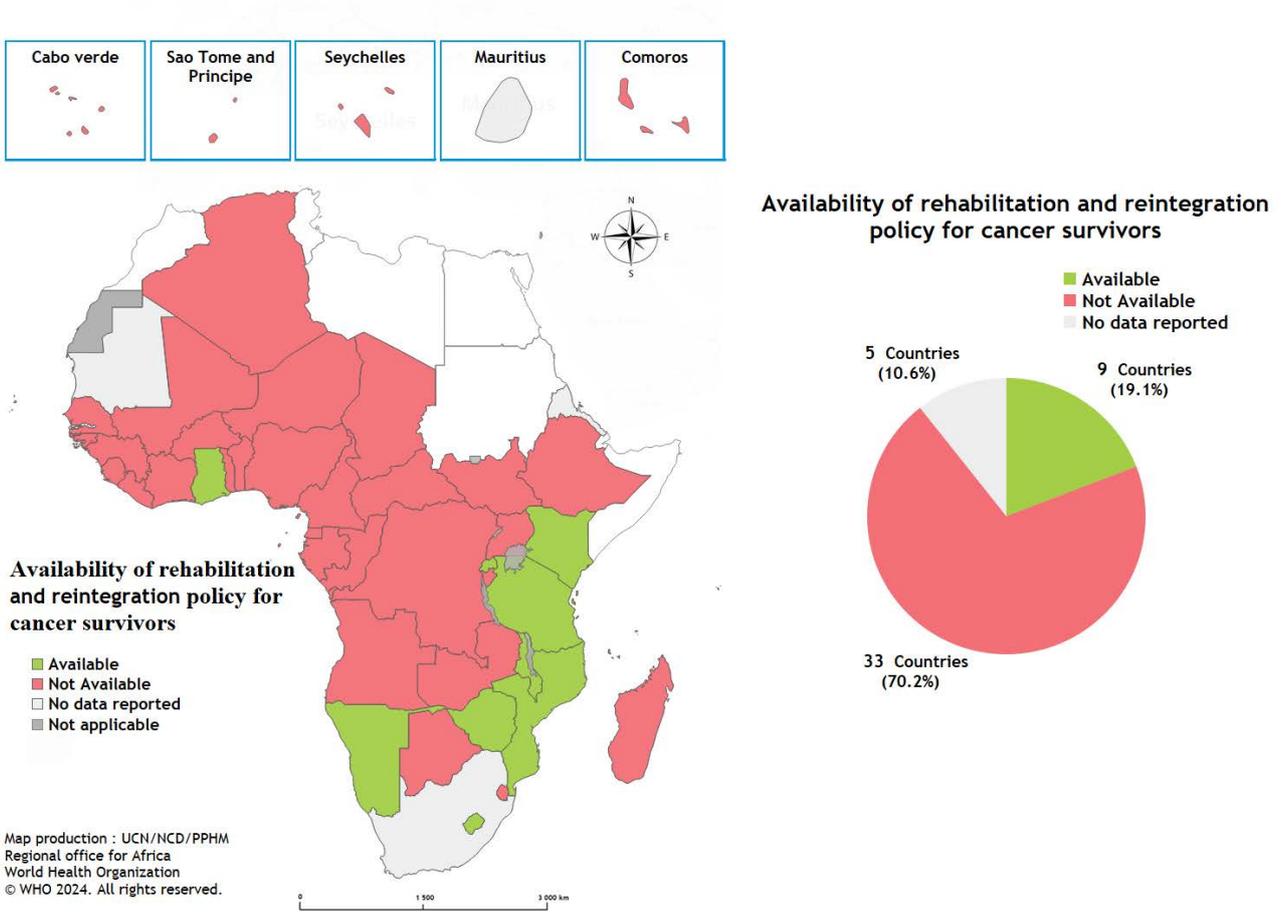
4.2.5. Rehabilitation and reintegration policy for cancer survivors

More than 70% of countries in the Region do not have a rehabilitation and reintegration policy for cancer survivors (Fig.11). The countries that have

those policies are all from East and Southern Africa (Kenya, Lesotho, Malawi, Mozambique, Namibia, Rwanda, United Republic of Tanzania, Zimbabwe), except Ghana, in West Africa. However, we lack details on the components of the policy or its implementation.



Fig. 11. Availability of rehabilitation policy for cancer survivors



The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

4.2.6. Health system financing

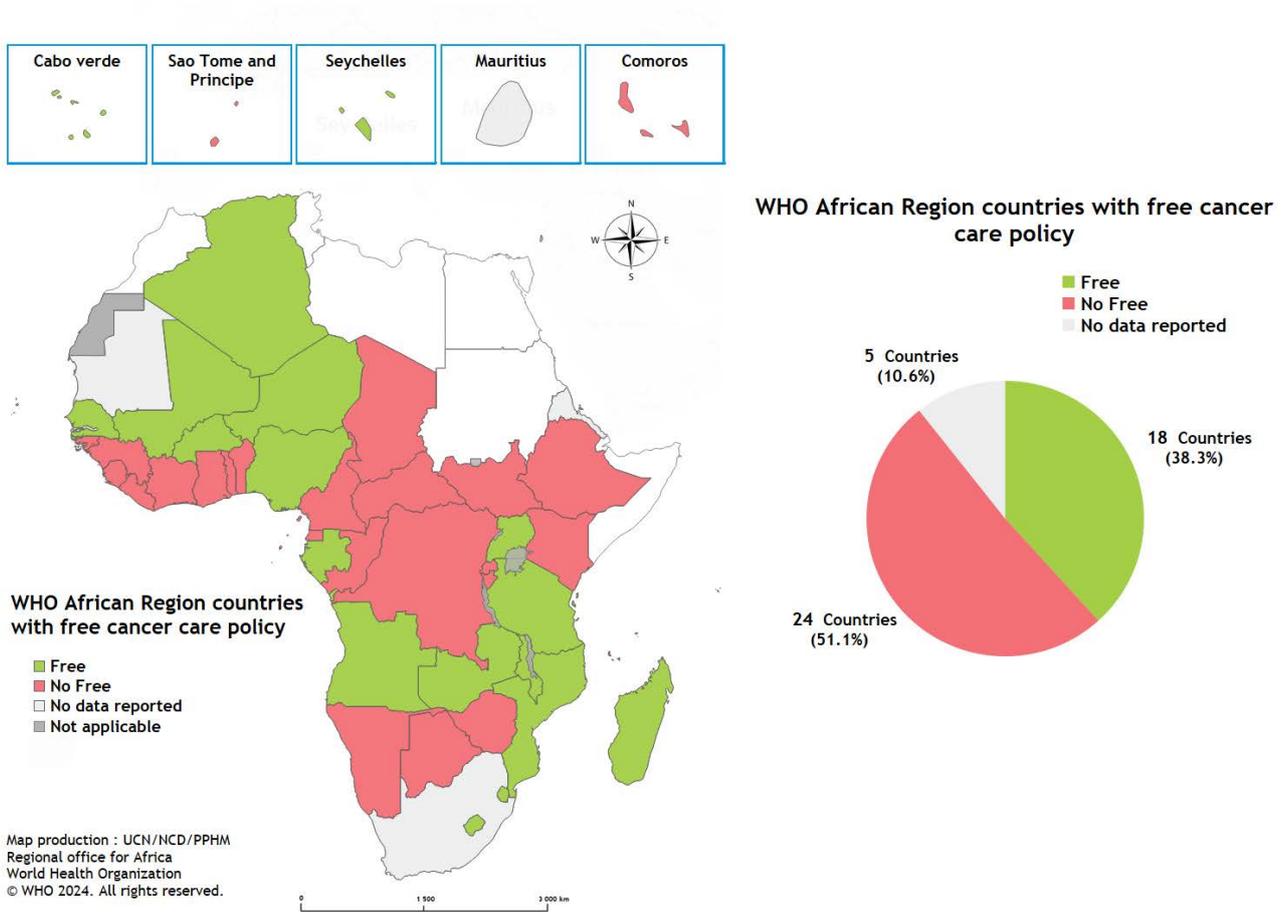
Existence of free cancer care policy

There are 18 countries out of 42 (Fig. 12) that reported having a policy of free cancer care: Algeria, Angola, Burkina Faso, Cape Verde,

Eswatini, Gabon, Lesotho, Madagascar, Malawi, Mali, Mozambique, Niger, Nigeria, Senegal, Seychelles, United Republic of Tanzania, Uganda, and Zambia. No other details were provided to specify the inclusion of the continuum of care though health promotion, diagnosis to rehabilitation in the coverage.



Fig. 12. WHO African Region countries with free cancer care policy



The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

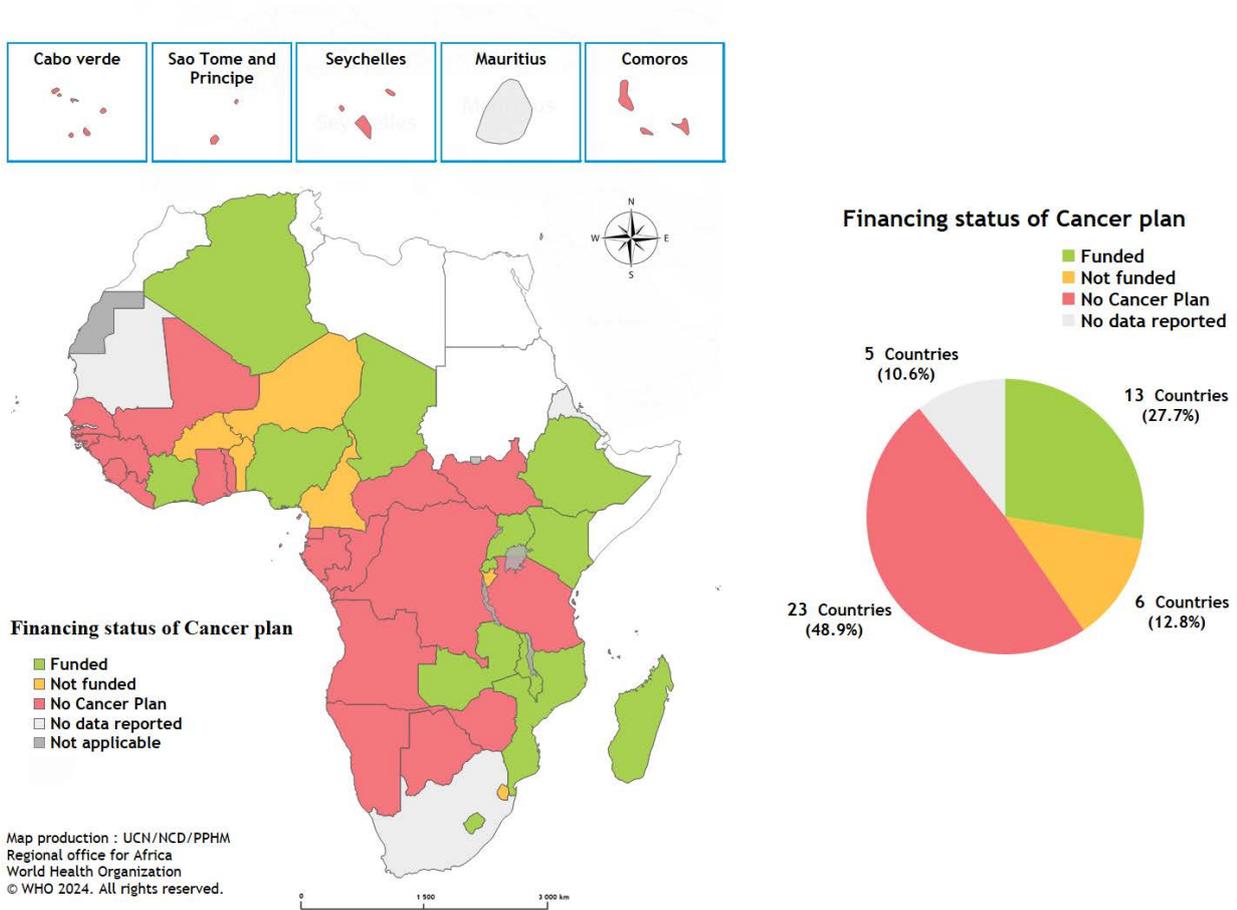
Funding of cancer plans

Regarding the funding of cancer plans (Fig. 13), the survey showed that 11 countries (Algeria, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mozambique,

Nigeria, Rwanda, Uganda, Zambia) have a costed and funded plan while two (Côte d'Ivoire, Chad) countries have not yet costed their plans, but they allocate funds for cancer interventions.



Fig. 13. Financing status of cancer plan



The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

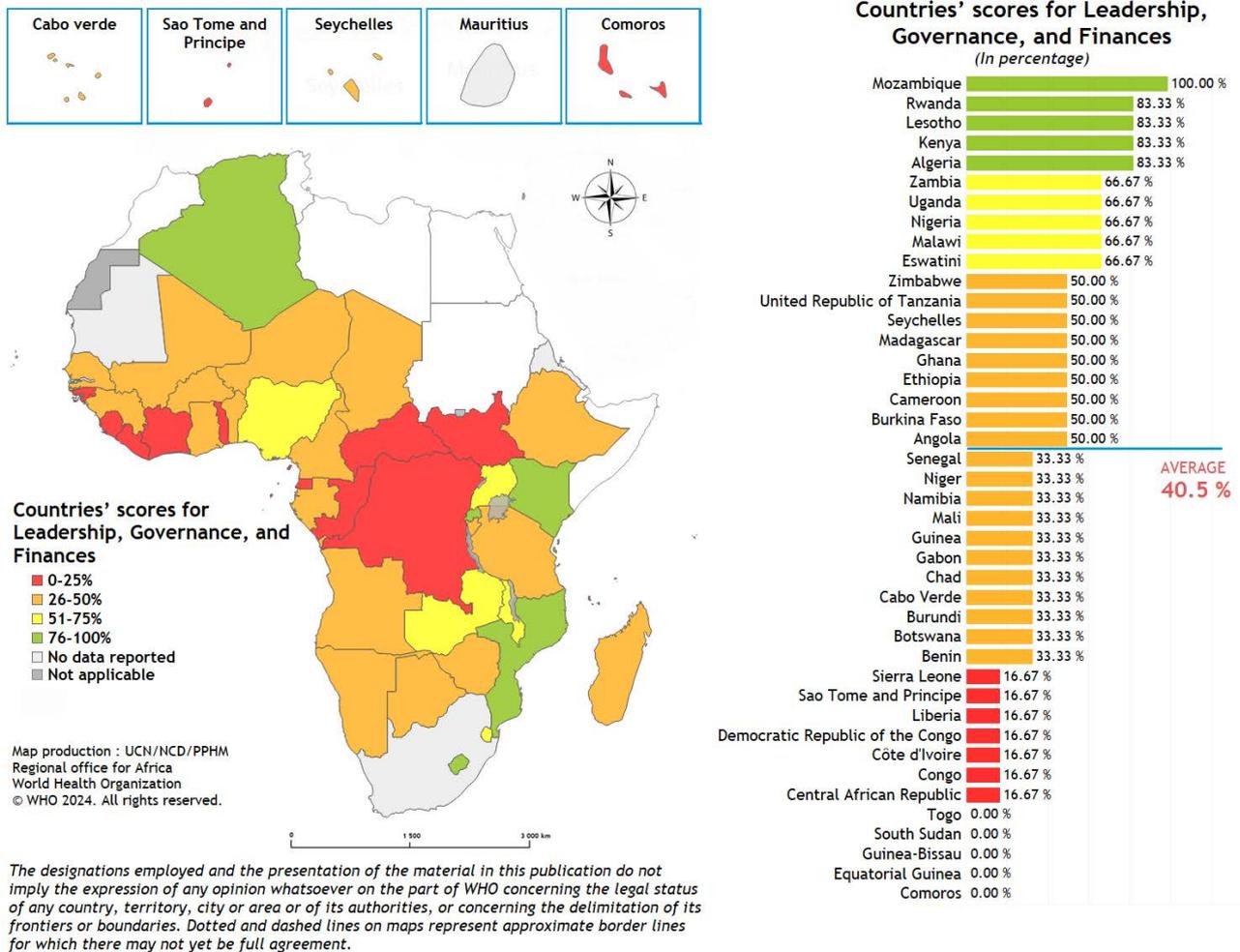
4.2.7. Scores for leadership, governance, and financing

Criteria was established and a score developed (Annex 4.2) to rank countries according to their capabilities in selected key areas of the health system for cancer control. For LGF, five criteria were evaluated: existence of a strategic plan for cancer control in the country, existence of a cancer

focal point at the ministry of health, existence of free cancer policy, existence of an organized breast cancer screening and/or early diagnosis programme, and the presence of national treatment guidelines for breast cancer.



Fig. 14. Countries' scores for leadership, governance and financing



In terms of LGF the scores (Fig. 14) range from 0% (Comoros, Equatorial Guinea, Guinea Bissau, South Sudan, Togo,) to 100% (Mozambique) with a regional average of 40.5 %. It should be noted that 23/42 countries have a score below the regional average.

4.3. Cancer control service delivery

4.3.1. Laboratory

Pathology laboratories play a critical role in cancer diagnosis, with the number of such laboratories varying by country. In addition to the pathology test, breast cancer treatment (Fig. 15) strategies also depend on identifying the tumour subtype through immunohistochemistry (IHC). The time

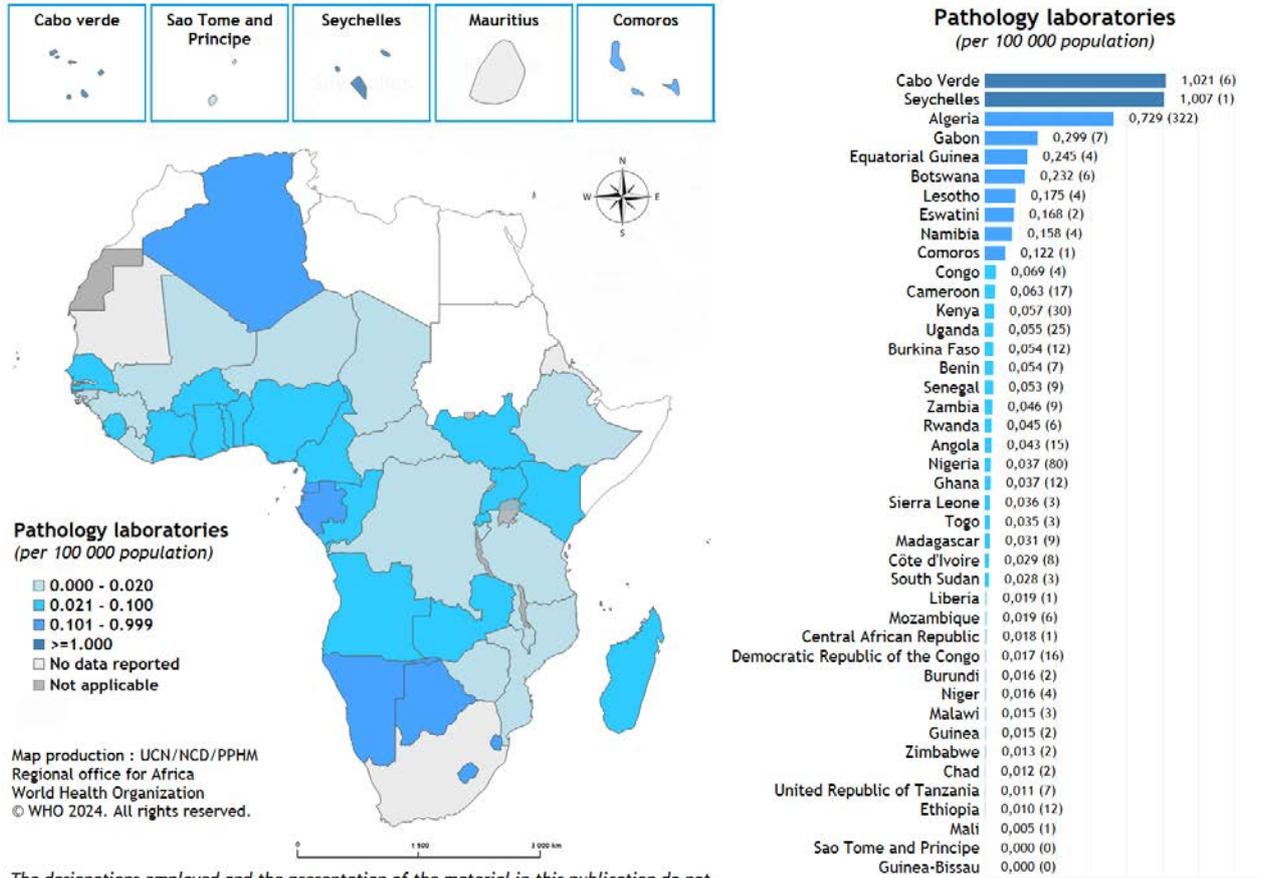
required to deliver pathology results, which is essential for confirming a cancer diagnosis, varies depending on the country.

Pathology services

In the survey it appears that the public sector has 61% of pathology services in the African Region. Two countries, Guinea Bissau and Sao Tome and Principe do not have pathology laboratories either in the public or private sector. Three other countries (Comoros, Equatorial Guinea, and Namibia) have pathology laboratories only in the private sector. As far as the number of laboratories per 100 000 inhabitants is concerned, there are between zero and two laboratories depending on the country. Two of the 42 countries have at least one laboratory per 100 000 inhabitants.



Fig. 15. Number of pathology laboratories



The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

The number in brackets (*) represents the total number of laboratories.

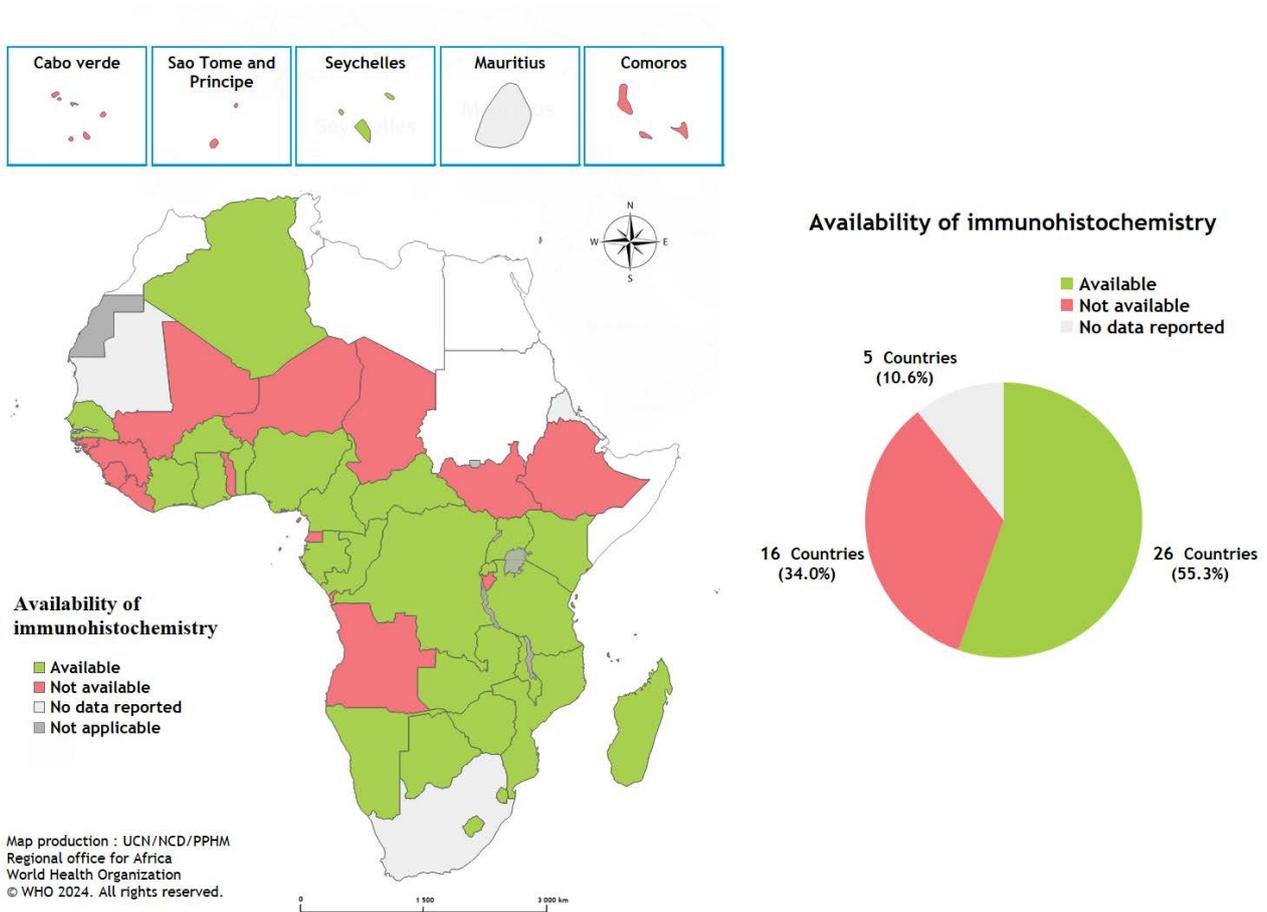
Immunohistochemistry platform

The availability of an immunohistochemistry platform is noted in 26 out of 42 countries (Fig. 16): Algeria, Benin, Botswana, Burkina Faso, Cameroon, Central African Republic, Congo, Cote d'Ivoire, Democratic Republic of the Congo, Eswatini,

Gabon, Ghana, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Nigeria, Rwanda, Senegal, Seychelles, Uganda, United Republic of Tanzania, Zambia, Zimbabwe. In 16 countries cancer patients still have no access to IHC.



Fig. 16. Availability of immunohistochemistry



The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

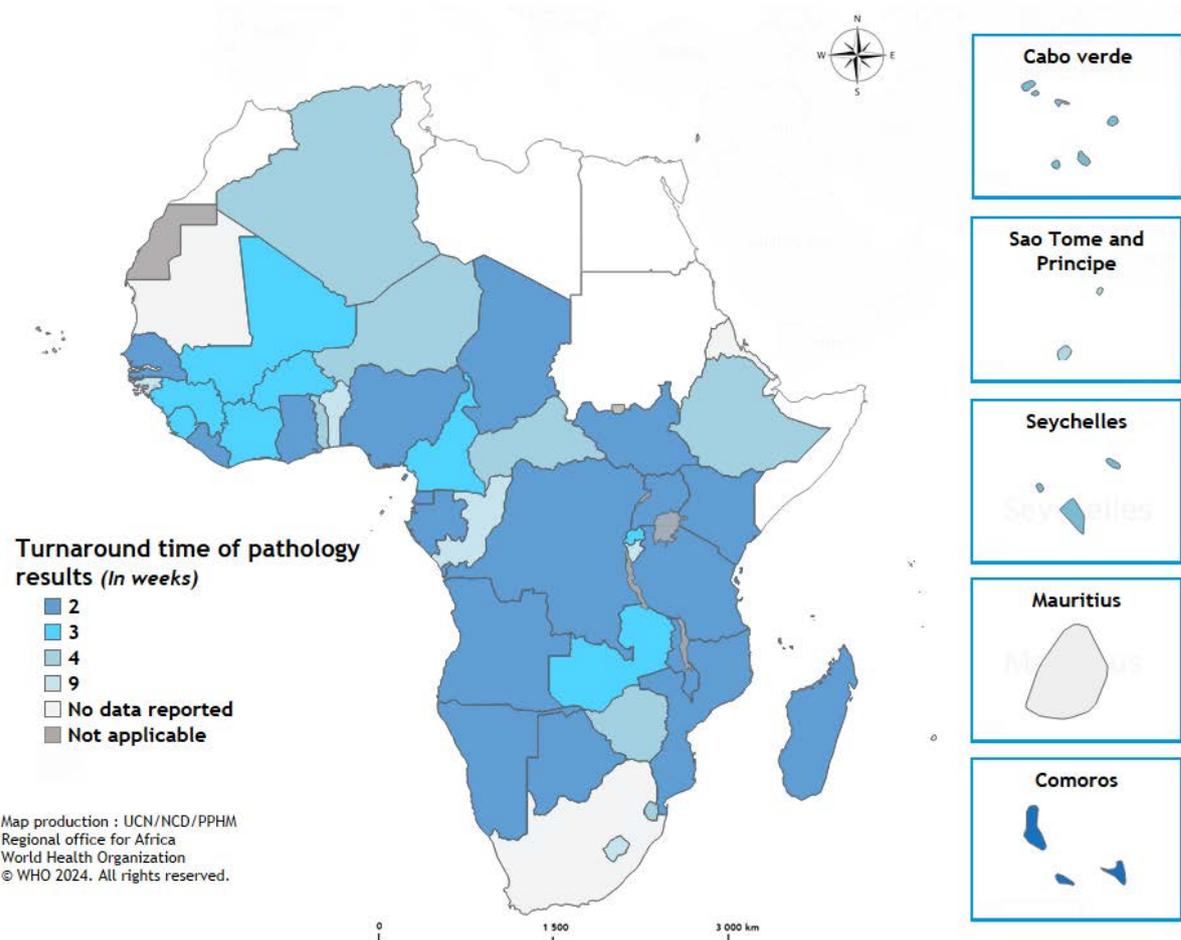
Turnaround time for pathology

The turnaround time (Fig. 17) reported is less than three weeks for 27/42 of the countries and exceeds nine weeks for six countries (Benin, Burundi, Congo, Guinea-Bissau, Lesotho, Sao Tome and

Principe). Guinea-Bissau, and Sao Tome and Principe are obliged to send the sample outside the country. The regional average for turnaround time is 3.61 weeks.



Fig. 17. Turnaround time of pathology results



The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

4.3.2. Score for service delivery

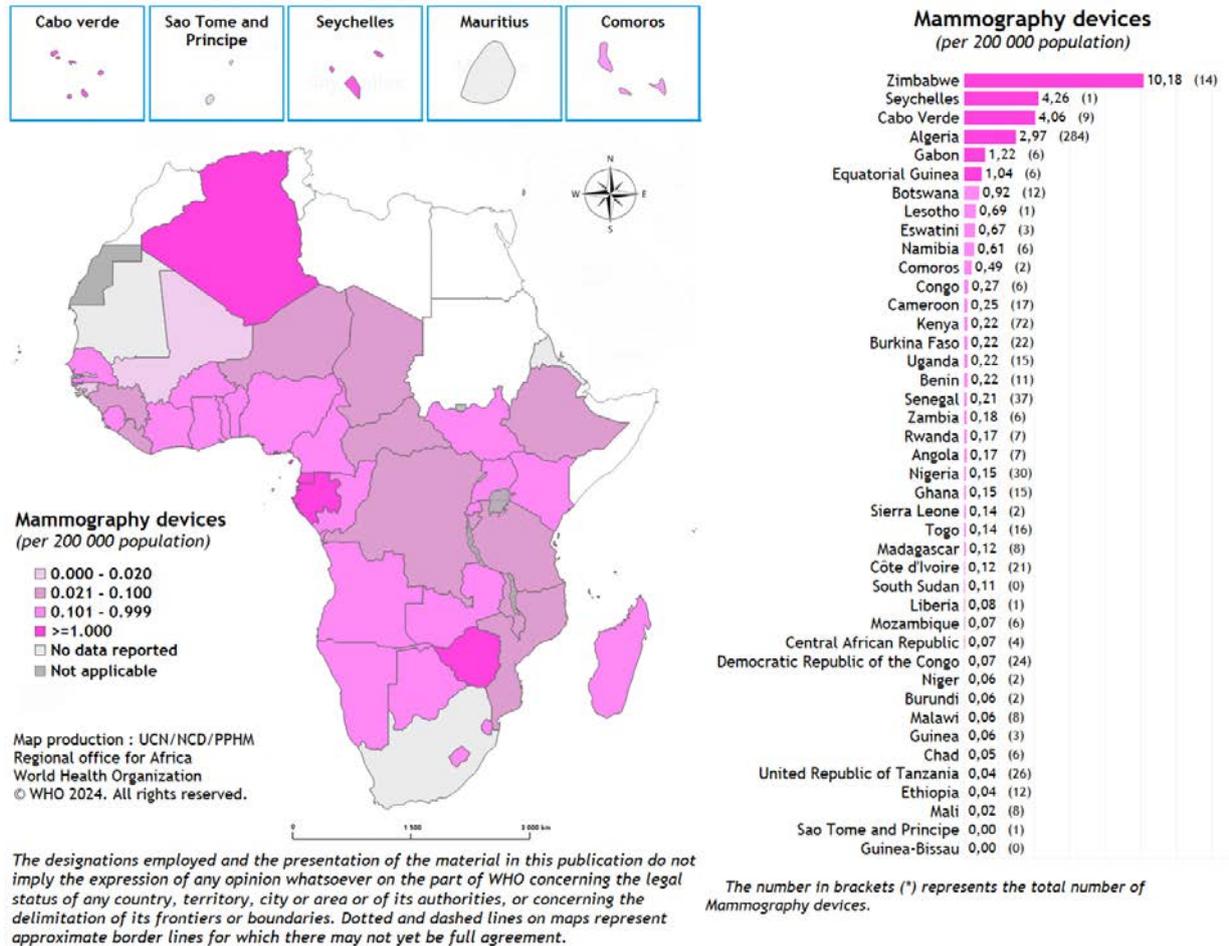
Mammography is used for breast cancer screening, diagnostic guidance, post-treatment follow-up, and screening of the contralateral breast. Conventional radiology plays a key role in assessing the lungs and bones, particularly to detect adjacent invasion or metastasis. This technology is widely employed in low-income countries, where it is often the only radiological exam available in most health care centres. MRI, on the other hand, is a specialized imaging test that has special indications in breast cancer.

Mammography

In the Region, the data on the availability of mammography (Fig. 18) shows that the private sector has 54% of functional mammography equipment. The number of mammography devices per 200 000 inhabitants ranges from 0 to 10 depending on the country. Six of the 42 countries have at least one mammography device per 200 000 inhabitants.



Fig. 18. Mammography devices in countries



Conventional radiology

The private sector has 67% of the functional radiology equipment.

CT scan

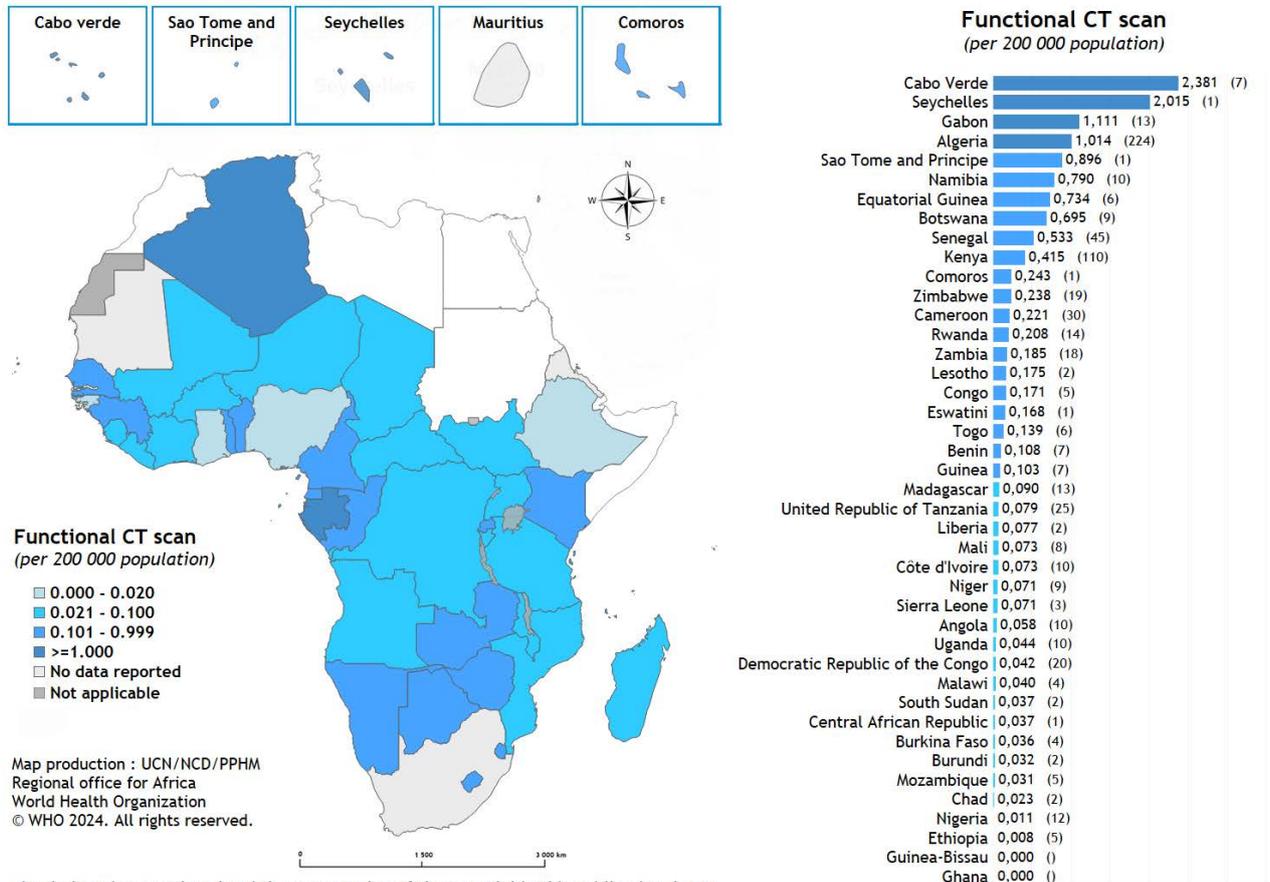
CT scans are used to assess the spread of the cancer and monitor for recurrence. There are 16 countries with 1-5 devices, 12 countries with 6-10

devices, 12 countries with 12-30 devices, and 2 countries in the Region (Kenya, Algeria) with 110 and 224 devices respectively (Fig. 19).

The number of CT scans devices per 200 000 inhabitants ranges from 0 to 2 depending on the country. Four of the 42 countries have at least one CT scan per 200 000 inhabitants.



Fig. 19. Functional CT scan



The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

The number in brackets (*) represents the total number of Functional CT scan.

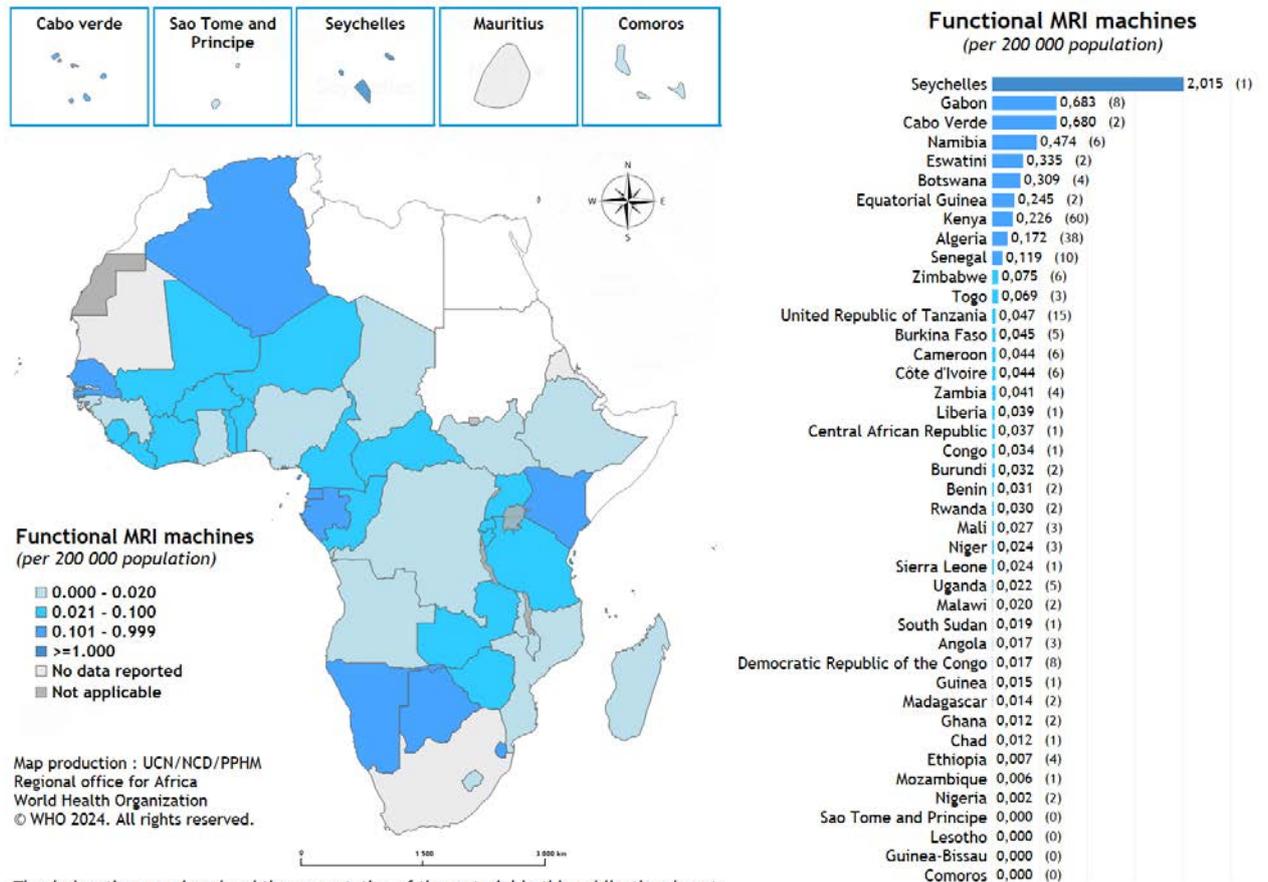
Magnetic resonance imaging (MRI)

There are four countries that do not have a functional machine (Comoros, Guinea-Bissau, Lesotho, Sao Tome and Principe), nine countries that have one functional machine (Central African Republic, Chad, Congo, Guinea, Liberia, Mozambique, Seychelles, Sierra Leone, South Sudan), 13 countries that have between two and three functional machine (Angola, Benin, Burundi, Cape Verde, Equatorial Guinea, Eswatini, Madagascar, Malawi, Mali, Niger, Nigeria,

Rwanda, Togo). Some countries such as United Republic of Tanzania (15 machines), Algeria (38 machines) and Kenya (60 machines) stand out from other countries in the Region (Fig. 20). The mean number of functional MRIs per subregion was 3.3 (SD=3.2, range: 0-8) in Central Africa, and 6.5 (SD=13.8, range: 0-60) in ESA, and 5.3 (SD=9.4, range: 0-38) in West Africa. In reporting countries, the number of MRI machines per 200 000 inhabitants is between 0 and 2. Only one country has at least 1 MRI per 200 000 inhabitants (Seychelles).



Fig. 20. Functional MRI machine



The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

The number in brackets (*) represents the total number of Functional MRI machines.

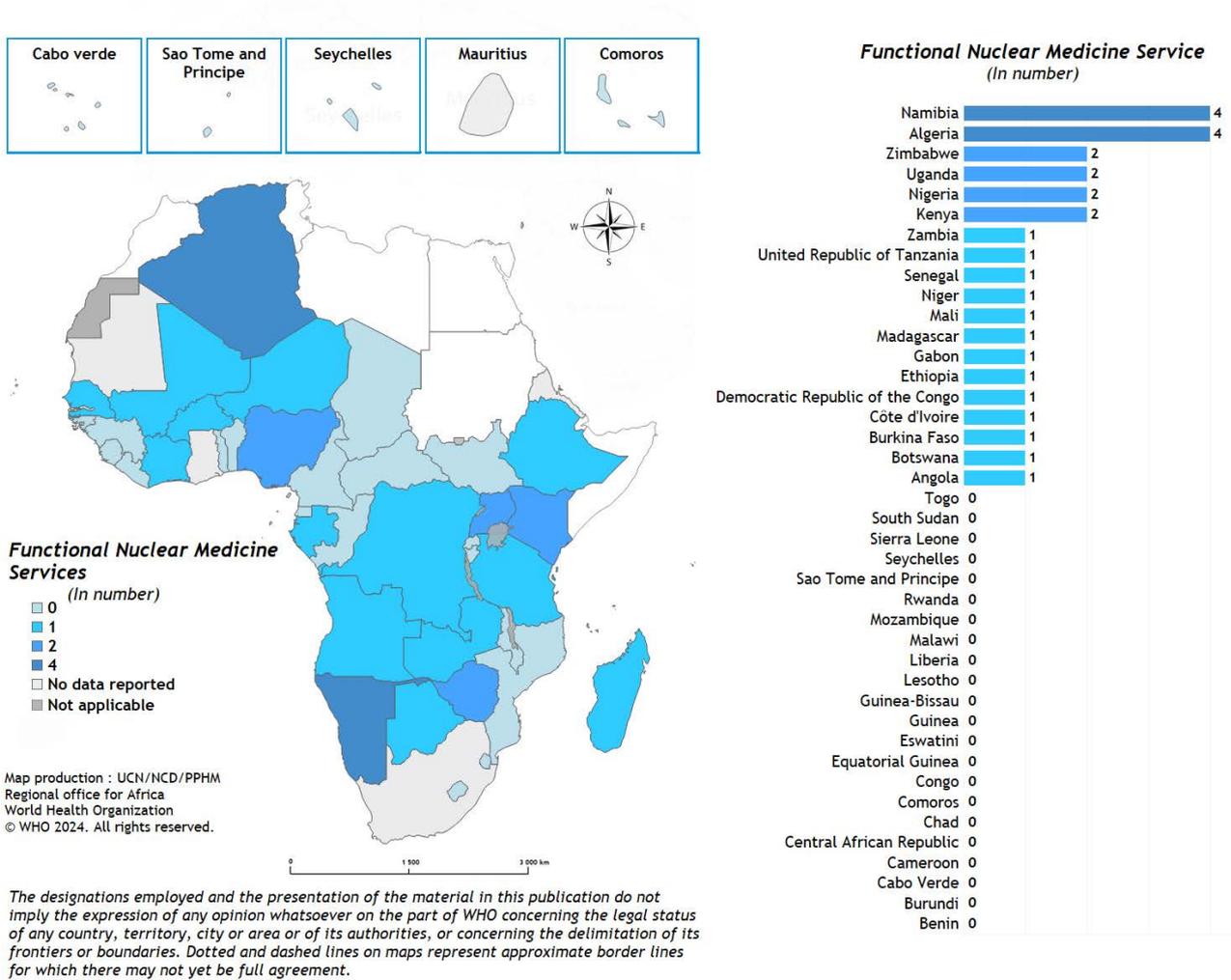
Nuclear medicine services

Nuclear medicine is a component in cancer diagnosis and treatment. Services are available and functional in 19/42 countries of the Region (Fig. 21). These are Algeria, Angola, Botswana, Burkina Faso, Côte d'Ivoire, Ethiopia, Gabon, Kenya, Madagascar, Mali, Namibia, Niger, Nigeria, Democratic Republic of the Congo, Senegal, Uganda, United Republic of Tanzania, Zambia, Zimbabwe.

Depending on its level of specialization, the department of nuclear medicine has several types of examinations ranging from scintigraphy to PET scans (positron emission tomography) which are investigations that are used as part of the monitoring of breast cancer patients. PET scan is only available in Algeria and Kenya.



Fig. 21. Functional nuclear medicine services



4.3.3. Treatment

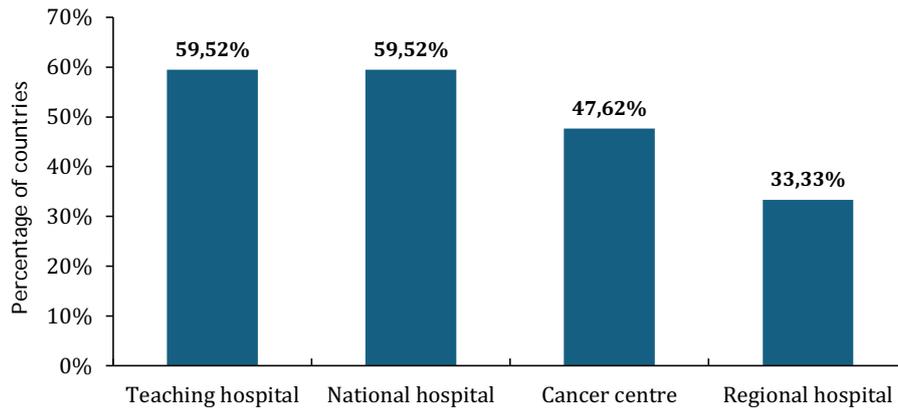
Treatment of breast cancer requires a multidisciplinary approach, including chemotherapy, radiotherapy, surgery, and palliative care, tailored to the stage of the disease. Radiotherapy is one of the most widely used methods in the treatment of cancer. It uses radiation of different types (X-rays, gamma rays and particles), which damage and destroy tumours (14). However, this treatment has side effects, especially for fast-renewing tissue. To minimize those side effects new technologies are constantly being developed and old generation machines like Cobalt are replaced by particle accelerator.

Cancer centres

The management of cancer patients in sub-Saharan African countries is provided by teaching hospitals (59.52%) and national hospitals (59.52%), cancer centres (47.62%) and in regional hospitals without specification of the area covered in 33.33%. In the African Region 27/42 countries reported the existence of cancer centres entirely dedicated to the care of cancer patients (Fig. 22).



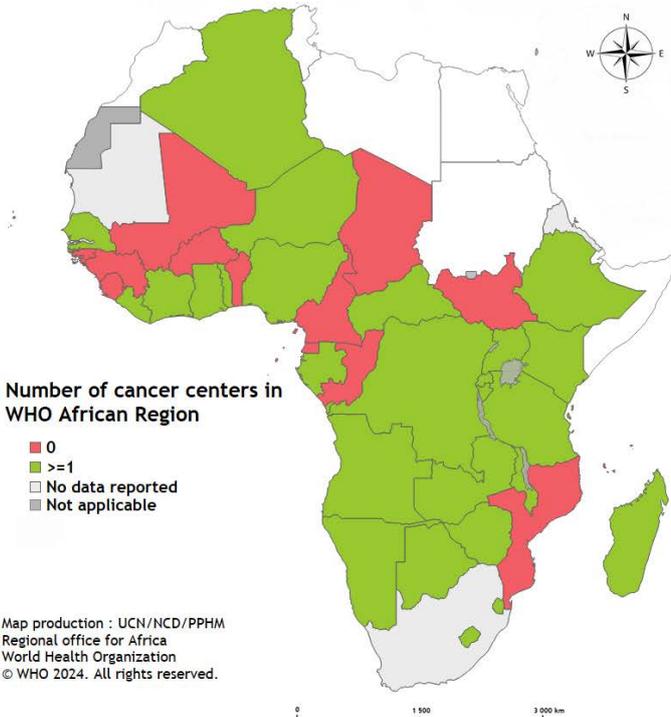
Fig. 22. Breast cancer treatment services



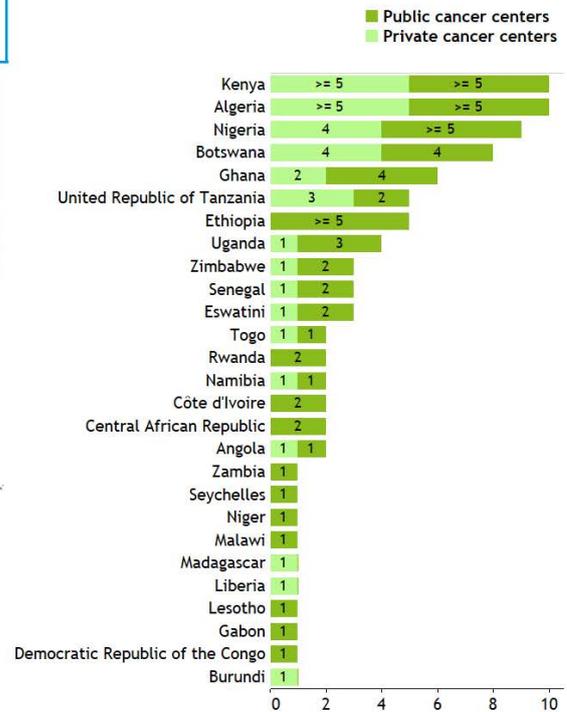
The number of cancer centres varies from country to country. Across the Region the number of cancer centres both in public and in the private sector is between 0 and 10. Twenty-seven countries have at least one cancer centre (Fig. 23). Algeria and Kenya reported the highest number (10 or more) followed by Nigeria (nine or more), Botswana

(eight), Ghana (six), Ethiopia and United Republic of Tanzania (five), Zimbabwe (three), Angola, Côte d'Ivoire, Namibia, Rwanda, and Togo (two). Other countries, especially in West and Central Africa, have no centre in the public sector. The data highlighted that the public sector owns 63% of these centres.

Fig. 23. Cancer centres in the WHO African Region (both public and private)



Number of cancer centers in WHO African Region (by public and private centers)



Countries without cancer centers in WHO African Region

Benin, Burkina Faso, Cameroon, Cabo Verde, Chad, Comoros, Congo, Equatorial Guinea, Guinea, Guinea-Bissau, Mali, Mozambique, Sao Tome and Principe, Sierra Leone, South Sudan.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

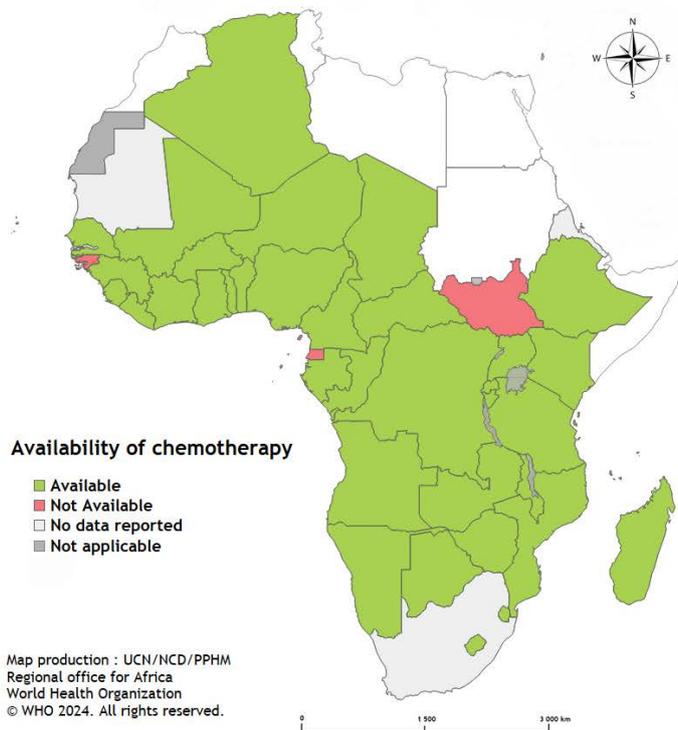


Chemotherapy

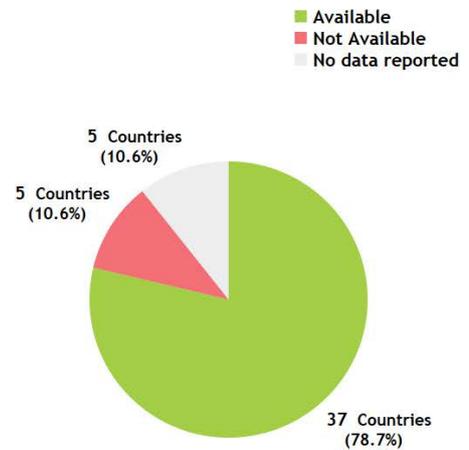
The analysis shows that 37/42 countries (88.10%) have chemotherapy services (Fig. 24). Comoros, Equatorial Guinea, Guinea-Bissau, Sao Tome and Principe and South Sudan reported no access to

chemotherapy for cancer patients. However, the available data do not provide us with an insight into the affordability of chemotherapy for the population.

Fig. 24. Availability of chemotherapy



Availability of chemotherapy



Map production : UCN/NCD/PPHM
Regional office for Africa
World Health Organization
© WHO 2024. All rights reserved.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

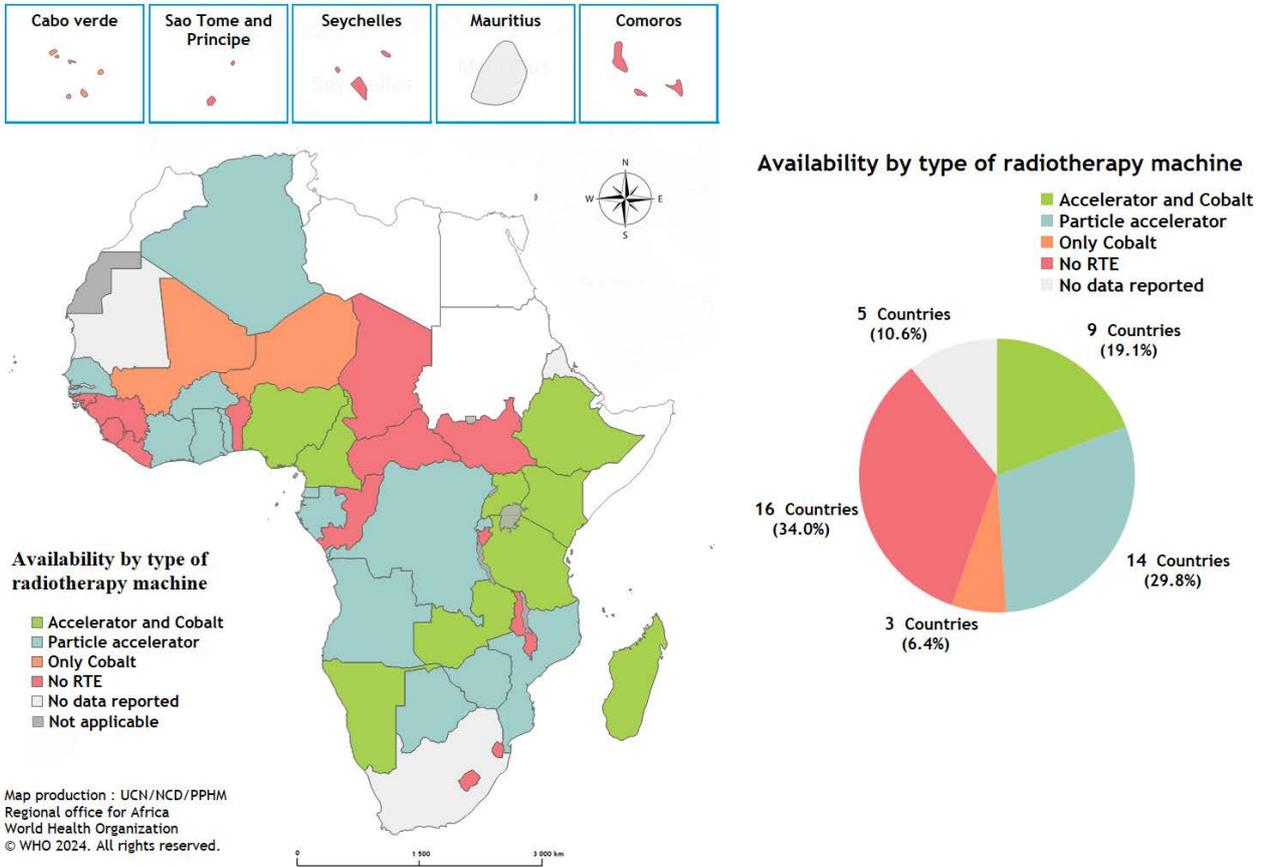
Radiotherapy

Sixteen out of 42 countries (38%) do not have any radiotherapy equipment. They are Benin, Burundi, Comoros, Eswatini, Guinea, Guinea-Bissau, Lesotho, Liberia, Malawi, Central African Republic, Chad, Congo, Sao Tome and Principe, Seychelles, Sierra Leone and South Sudan (Fig. 25).

The private sector owns 60% of radiotherapy machines in the Region. There are both Cobalt 60 machines and linear accelerators in ten countries (Cameroon, Cape Verde, Ethiopia, Kenya, Madagascar, Namibia, Nigeria, Uganda, United Republic of Tanzania, Zambia) and in two countries (Niger, Mali) Cobalt 60 machines are the only type of device available for patient treatment.



Fig. 25. Availability by type of radiotherapy machine



The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

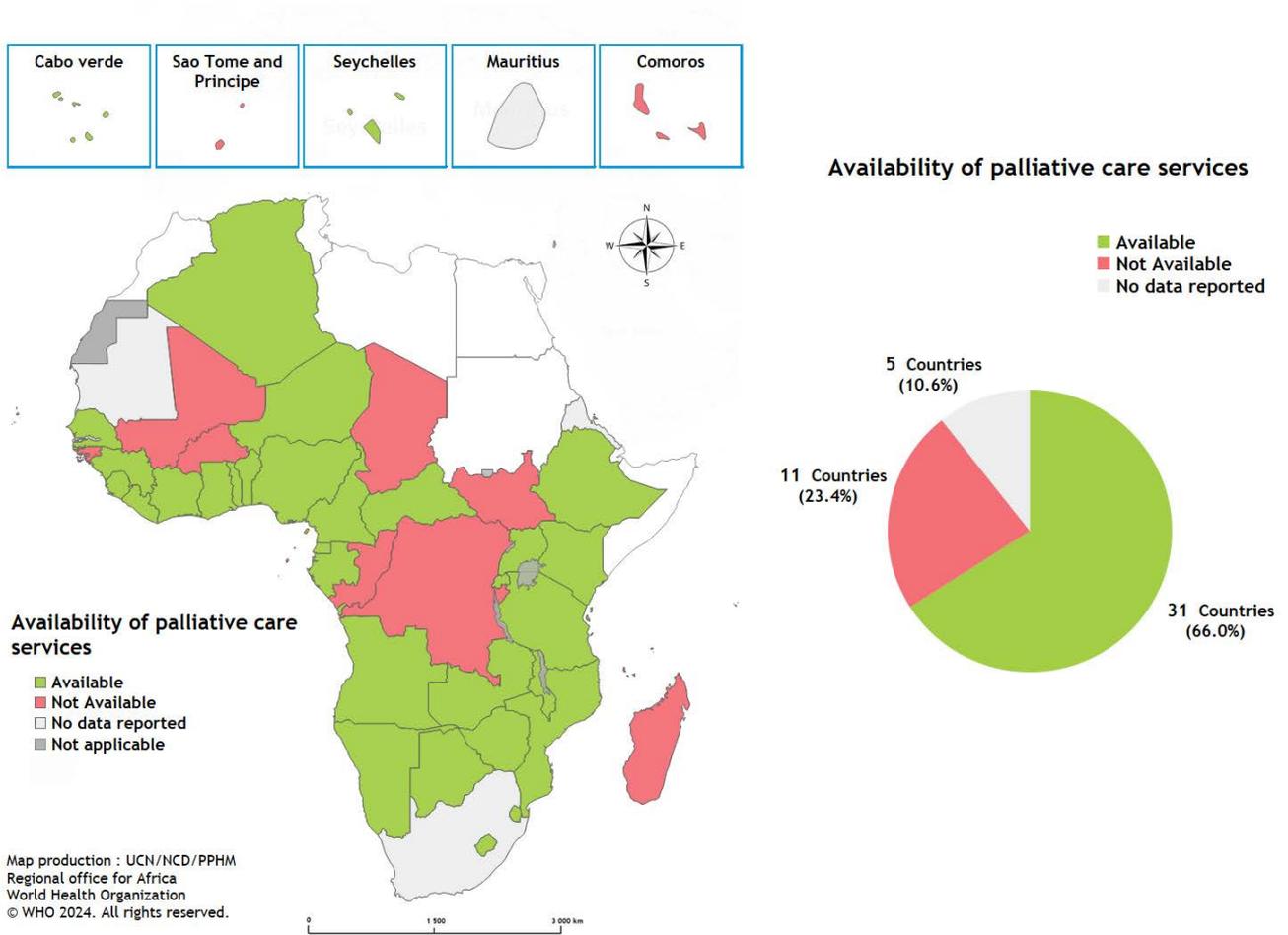
Palliative care

Thirty-one out of 42 countries (73.80%) report that palliative care is available in the public sector (Fig. 26). However, they did not describe

the components, types, or functionality of these services. Eleven countries reported having no palliative care services.



Fig. 26. Availability of palliative care services



The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

4.3.4. Score for service delivery

A score was calculated for service delivery (Fig. 27). Ten criteria were evaluated, with a value of 1 assigned if available and 0 if not available or reported. For results delivery time, this was recorded as 1 if results are available within a month, otherwise a value of zero is given:

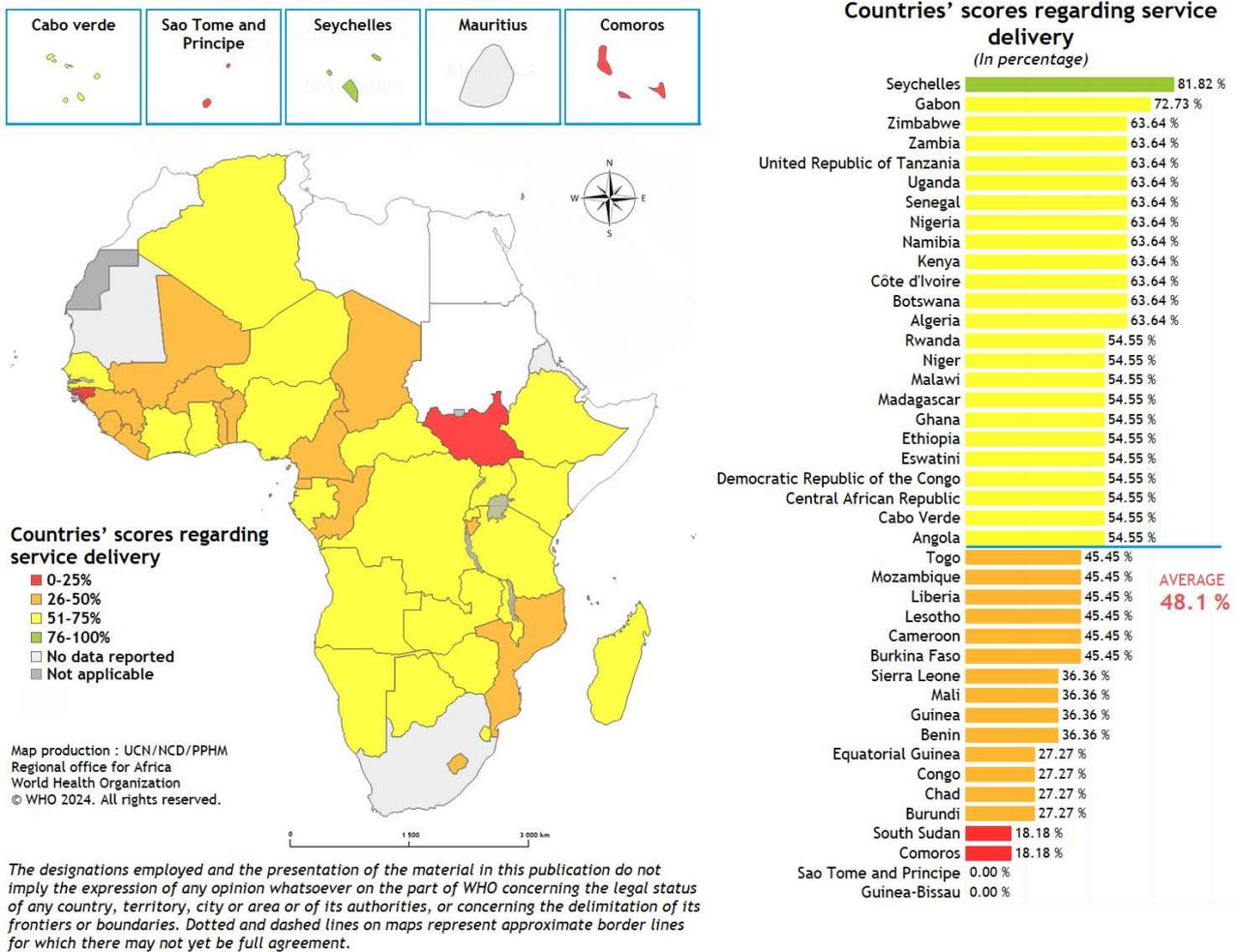
- Pathology services,
- Immunohistochemistry,
- Delivery time of pathology result,
- Availability of CT scan,

- Availability of MRI,
- Availability of nuclear medicine services,
- Availability of cancer center,
- Availability of chemotherapy,
- Availability of radiotherapy machine,
- Availability of palliative care services..

The scores range from 0% (Sao Tome and Principe, Guinea Bissau) to 81.8% (Seychelles) with a regional average of 48.1%. It should be noted that 15/42 countries have a score below the regional average.



Fig. 27. Country scores regarding service delivery



4.4. Health workforce

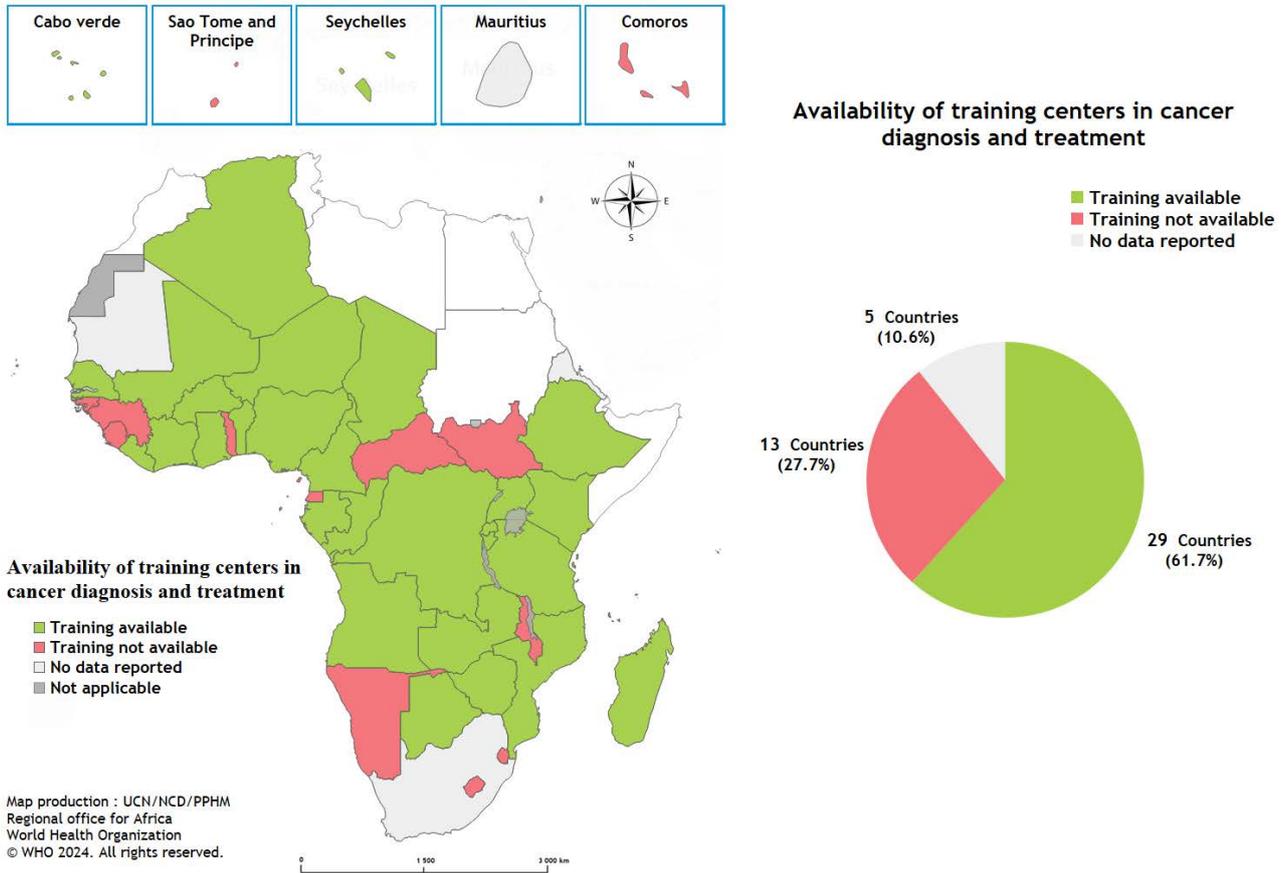
The health workforce can be defined as “all people engaged in actions whose primary intent is to enhance health” (12). The ability of a country to meet its health goals depends mostly on the

knowledge, skills, motivation, and deployment of the people responsible for organizing and delivering health services. Two items have been analysed in this section: the availability of training and availability of human resources in oncology.



4.4.1. Availability of training in oncology

Fig. 28. Availability of training centres in cancer diagnosis and treatment

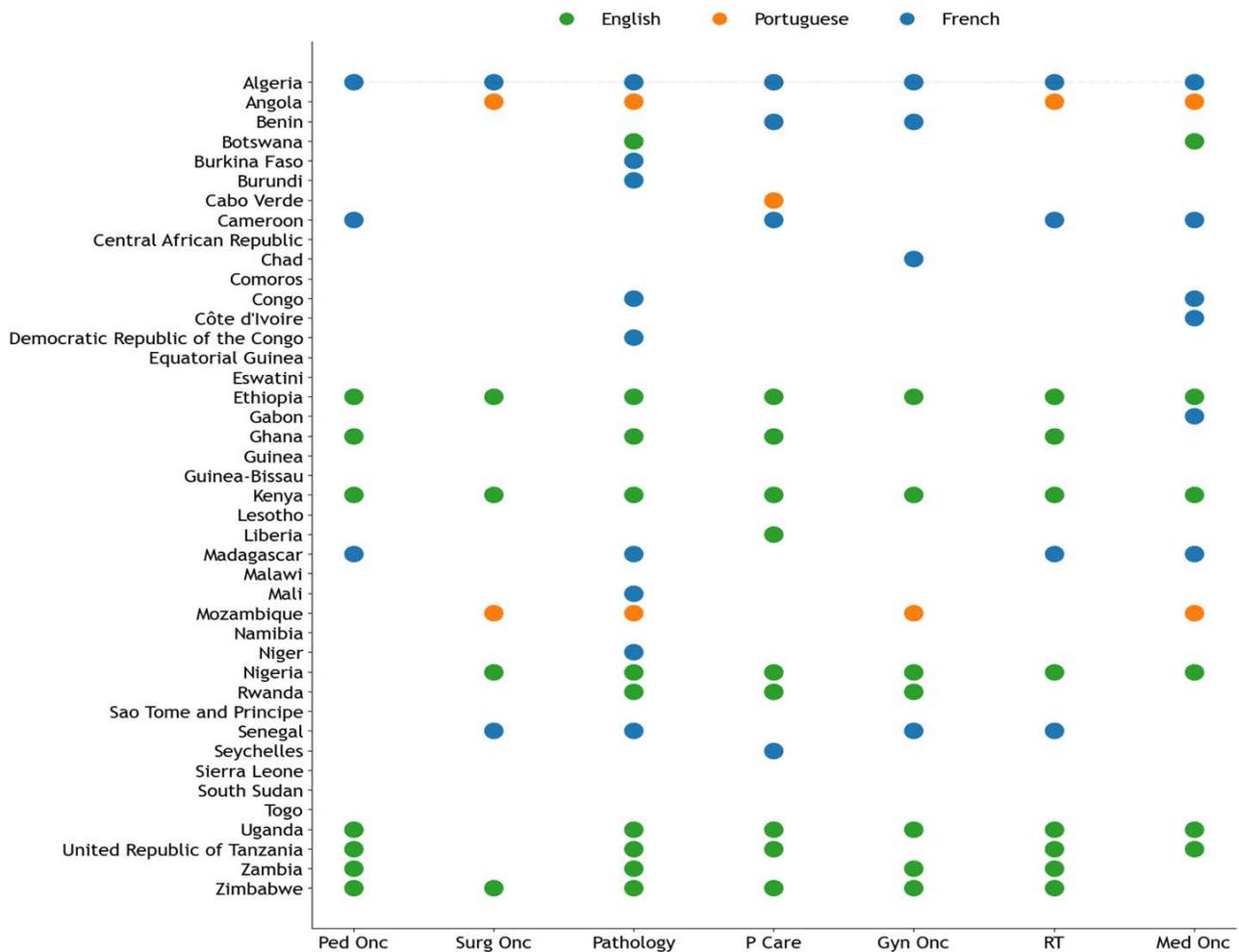


Eight out of 42 countries have no training in oncology (Fig. 28). Eight out of 42 countries have training in surgical oncology. Twenty-one out of 42

countries have training in pathology, and training exists in the language of the Region (Fig. 29).



Fig. 29. Training available in oncology in countries by language area



4.4.2. Availability of human resources in oncology

The availability, accessibility, acceptability, and quality of human health resources are critical factors in providing essential health services. We analysed the availability of 13 professions involved in the management of cancer in general and breast cancer in particular (Fig. 30).

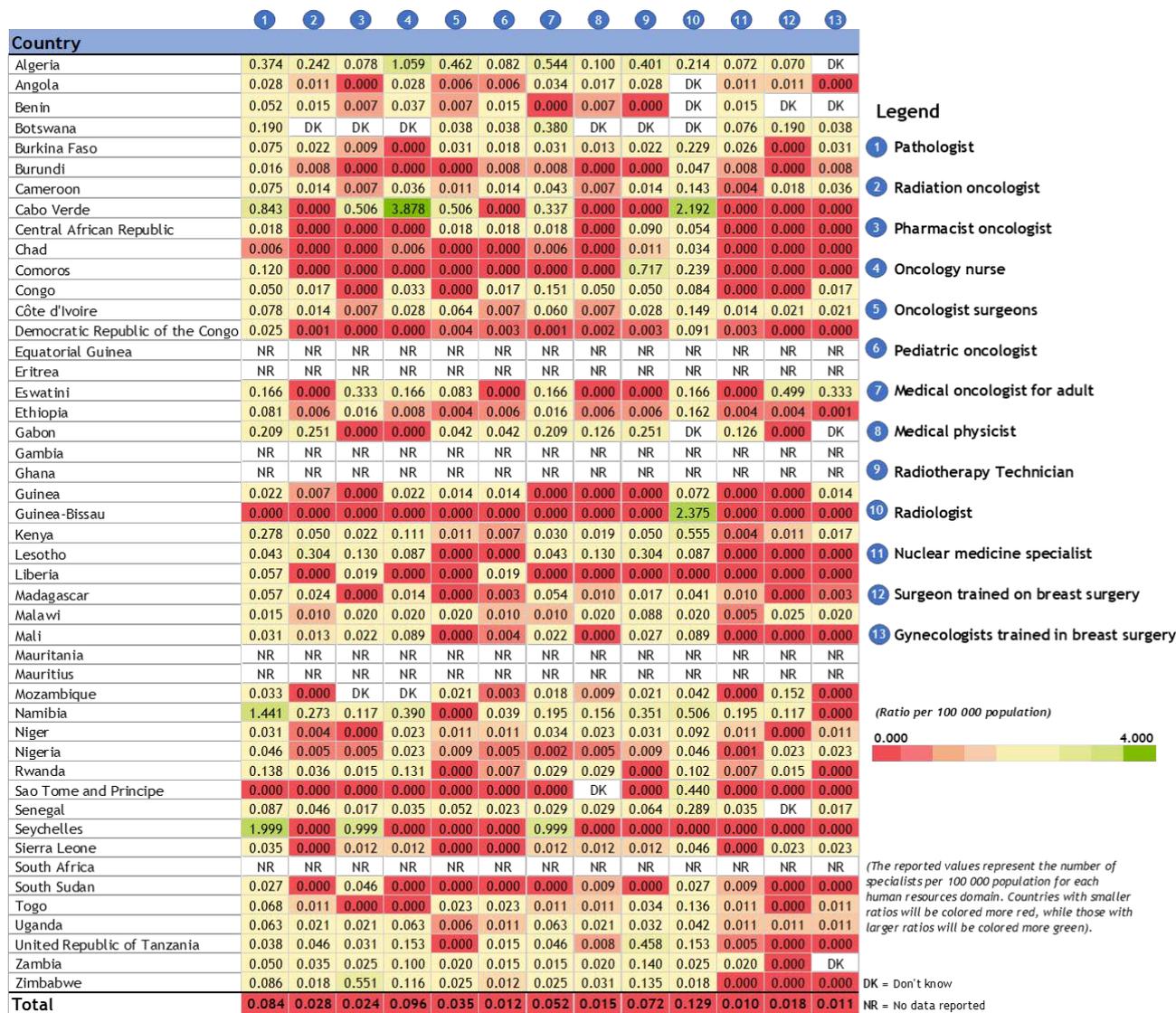
The dataset provides a snapshot of the human resource capacity related to breast cancer care in various African countries, covering a range of medical specialties. The availability of pathologists ranges widely, with some countries like Algeria having 224 pathologists, whereas others like Botswana have only five. Radio oncologist numbers vary, with Algeria having 145 radiotherapists and many countries having very few or none. The number of oncologists is very low

in many countries, with some reporting none. The availability of oncology nurses reveals a significant disparity, with Algeria reporting 634 oncology nurses, while some countries report none. Furthermore, Algeria has relatively higher numbers of oncologist surgeons and paediatric oncologists (277 and 49, respectively), while other countries have very few.

Radiologists and Nuclear Medicine specialists' presence is inconsistent, impacting diagnostic and treatment capacities. The same applies to surgeons and gynaecology specialists in breast: these roles are crucial for breast cancer diagnosis and treatment, with noticeable shortages in many countries. Overall, the human resource ratio per 100 000 inhabitants is low in the Region, regardless of the specialty targeted.



Fig. 30. Availability of human resources by specialty per 100 000 inhabitants

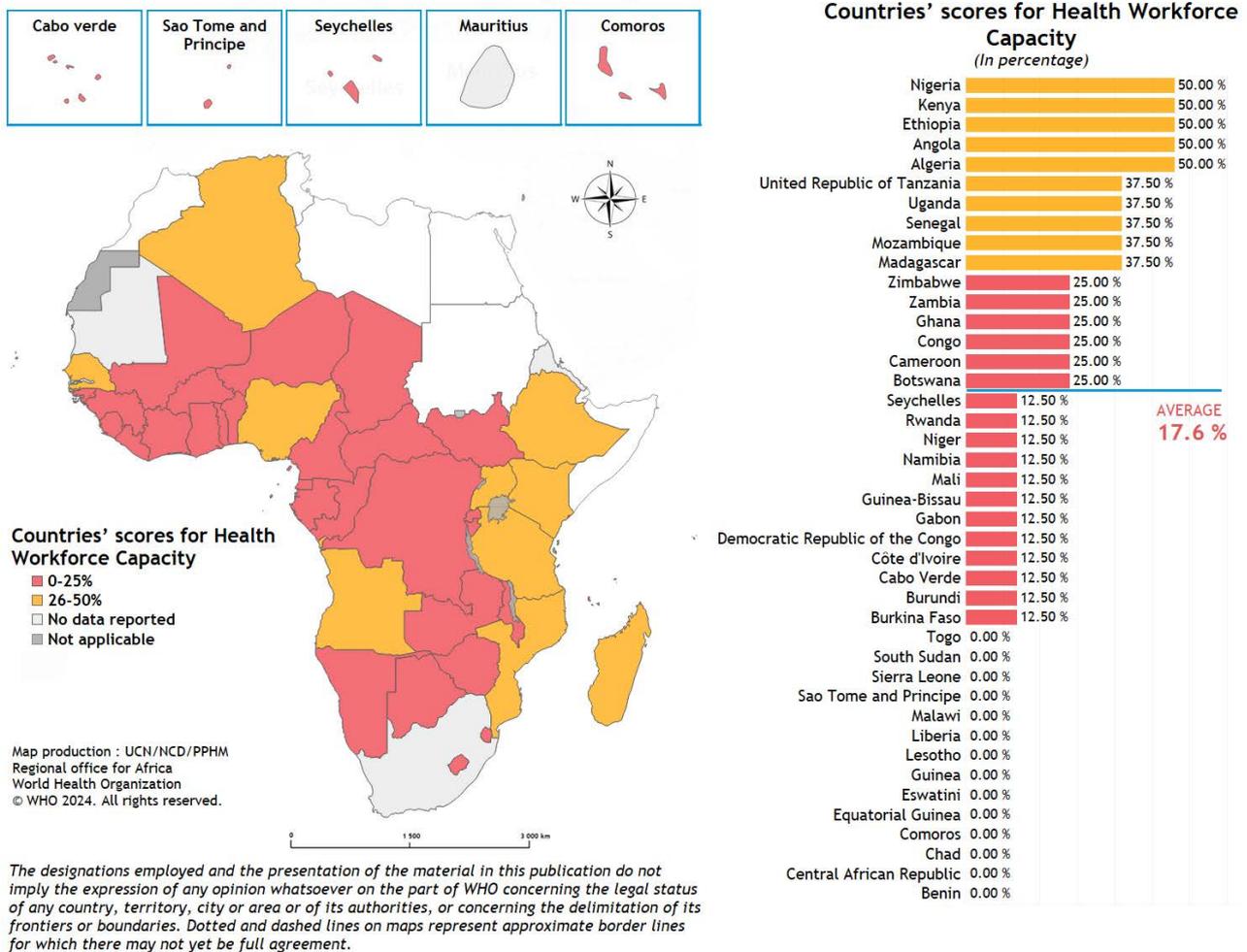


In terms of health workforce score, criteria have been taken in some strategic areas to evaluate the strength of the country: the availability of training in oncology (Adult Medical Oncology, Surgical Oncology, Pathology, Radiotherapy) and human resources (availability of radiation oncologists, availability of radiologists, availability of pathologists, availability of medical oncologists).

The country scores for health workforce capacity have been calculated based on four essential profiles: pathologist and radiologist for diagnosis, radio-oncologist, and medical oncologist for treatment. The score was per 100 000 inhabitants. The score showed a regional average of 17,6% with five countries reaching 50% and 14 with 0% (Fig. 31).



Fig. 31. Countries' scores for health workforce capacity



4.5. Surveillance and health information system

Surveillance is the ongoing systematic collection, analysis, and interpretation of health data. It includes the timely dissemination of the resulting information to those who need it for action. Surveillance is also essential for planning, implementation, and evaluation of public health practice. Several types of surveillance are used in national programmes. The choice of method depends on the purpose of the surveillance. Regardless of the type of surveillance, the important issue is that the health data is used for public health action [15].

In terms of health information systems for cancer the data are collected via different registries available. The purpose of a population-based cancer registry is to produce statistical data on

cancer in the country. It is an essential tool in cancer control planning.

There are 24 countries that reported having functional population-based cancer registries (Fig. 32): Algeria, Benin, Botswana, Burundi, Cameroon, Chad, Congo, Côte d'Ivoire, Eswatini, Ethiopia, Ghana, Guinea, Kenya, Liberia, Malawi, Mali, Mozambique, Namibia, Nigeria, Rwanda, Seychelles, Uganda, Zambia, and Zimbabwe.

Other types of cancer registries are available in the countries (Fig. 32) such as pathology, hospital-based cancer registries and other electronic registration systems. Five countries report having another cancer data recording system without specifying which one (Comoros, Equatorial Guinea, Guinea-Bissau, Lesotho, South Sudan).



Fig. 32. Availability of cancer registration in the Region



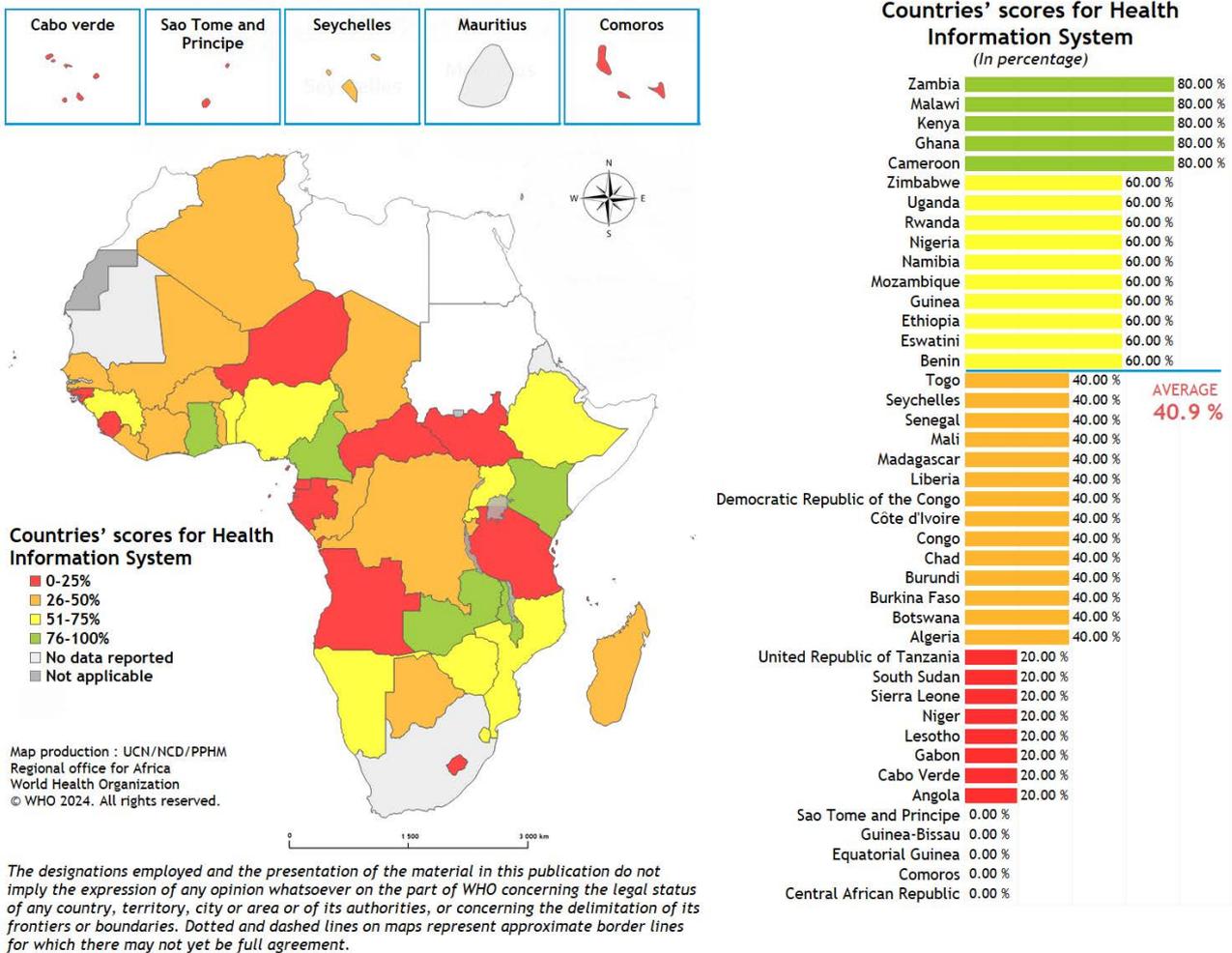
The registration of cancer cases via the cancer registry in the country is under the responsibility of the ministry of health for 26/42 countries and under the responsibility of the pathology laboratory alone or in collaboration with a national hospital and/or medical faculty in 9/42 countries.

A score was calculated to evaluate the capacity of the country in terms of health information system (Fig. 33), four criteria were considered. Population-based cancer registries (PBCR) are vital to assess the cancer burden (16). Double points were allocated in recognition of the importance of PBCR.



- Existence of population-based cancer registries
- Existence of hospital-based cancer registries
- Existence of histology-based cancer registries
- Existence of other electronic cancer registration system (DHIS2, HIS)

Fig. 33. Scoring for health information system.



For HIS, scores range from 0% (Sao Tome and Principe, Guinea Bissau, Equatorial Guinea, Comoros, Central African Republic) to 80% (Zambia, Malawi, Kenya, Ghana, Cameroon) with a regional average of 40.9 %. It should be noted that 15/42 are above the regional average.

4.6. Access to essential medicine

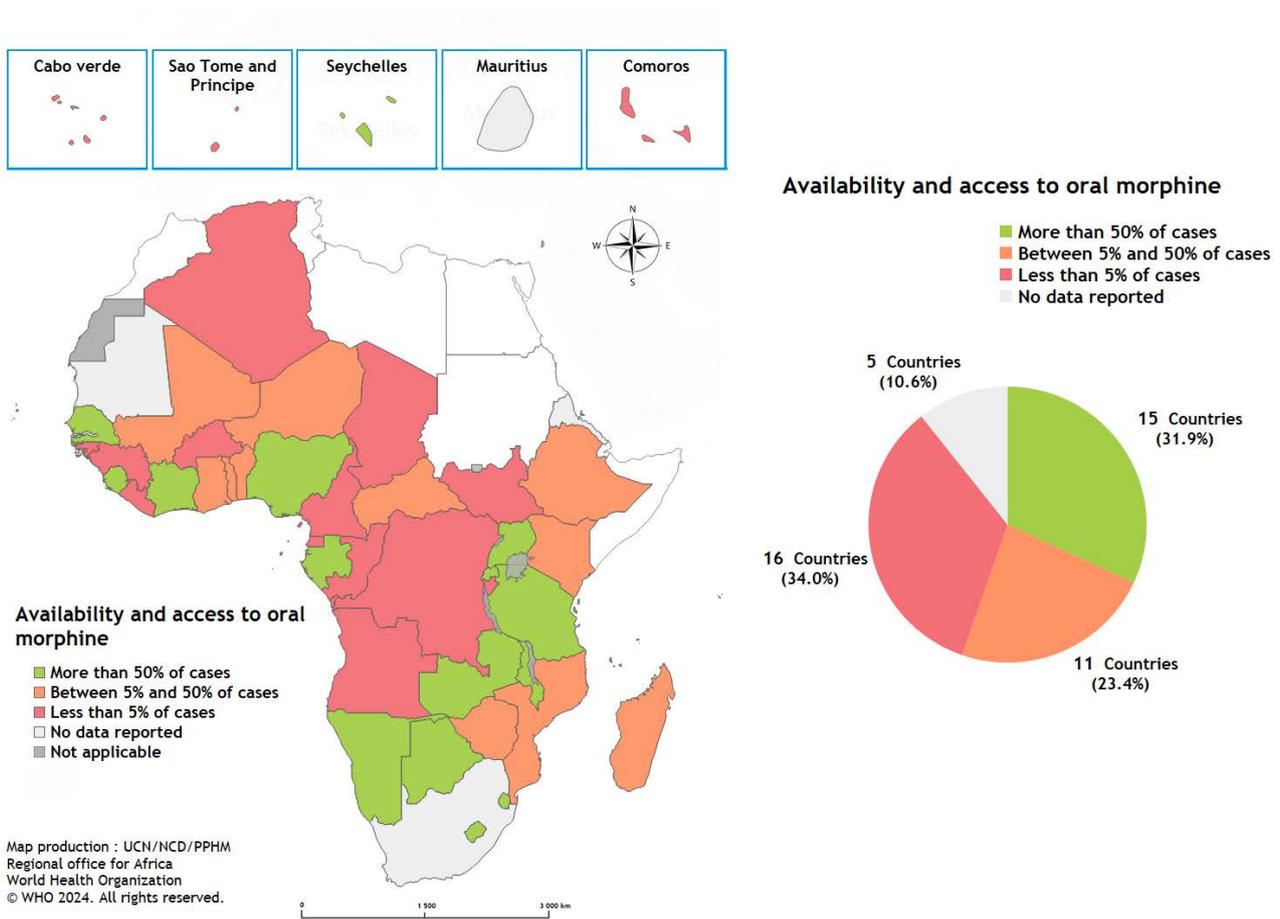
All the responding countries reported having access to different anti-cancer drugs for chemotherapy. Some countries, such as Benin, Burundi, Congo Republic, Democratic Republic of the Congo, Ethiopia, Guinea, Madagascar, Malawi, Niger and Sierra Leone, reported not having access

to certain targeted therapies essential for the treatment of patients with HER2-positive breast cancer.

Anti-aromatase drugs are anti-hormonal medicine used to treat hormone-dependent cancers. Most countries have a regular supply available, except for Angola, Congo Republic, Mali and Zambia, which report a frequent shortage. Morphine is the key drug for palliative care. There are 15 countries (35.71%) that report access to oral morphine in more than 50% of cases (Fig. 34). These are Botswana, Côte d'Ivoire, Eswatini, Gabon, Lesotho, Malawi, Namibia, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, Uganda, United Republic of Tanzania, and Zambia.



Fig. 34. Availability and access to oral morphine



The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

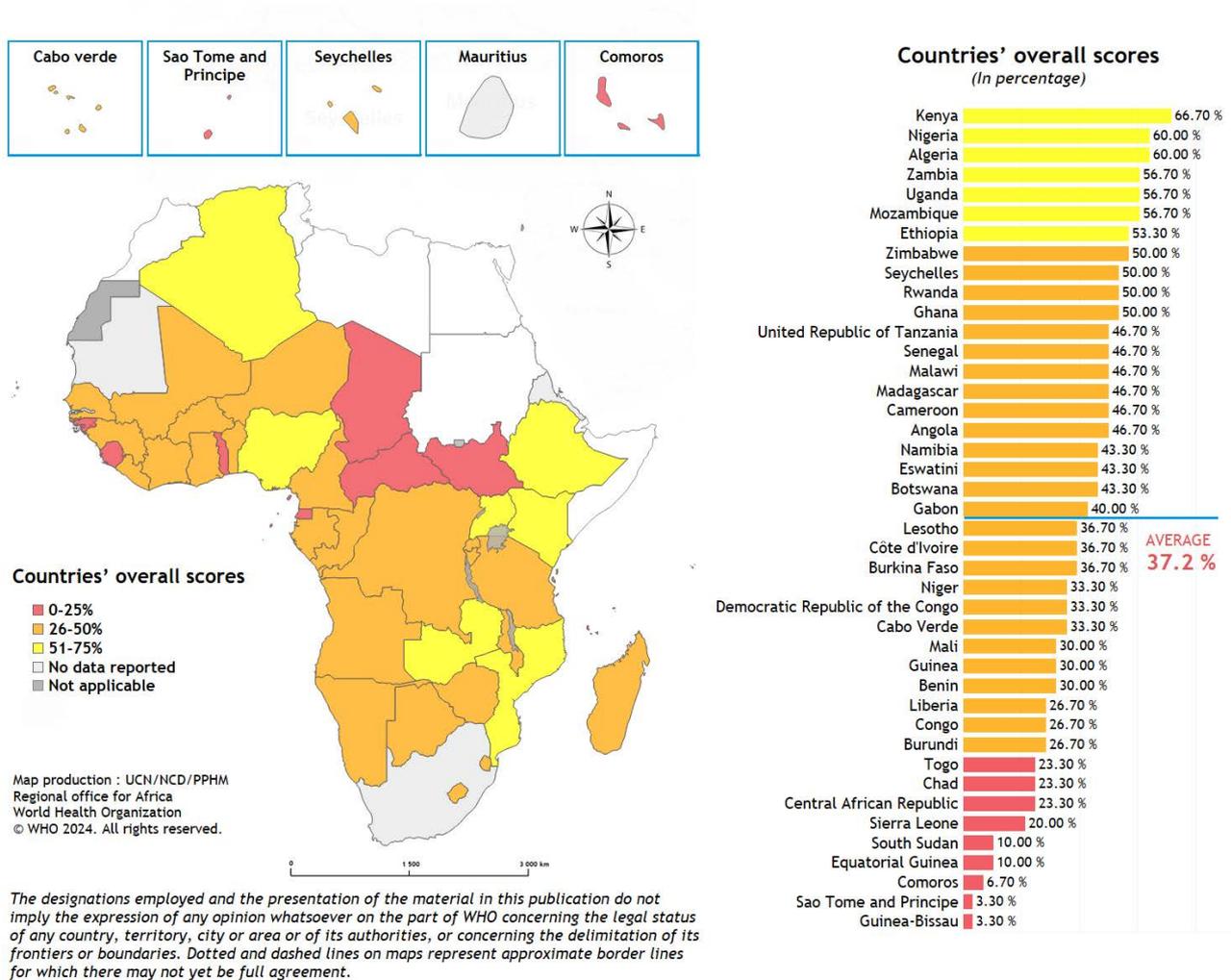
4.7. Overall score combining leadership and governance, health workforce, health information systems and service delivery regarding breast cancer

To summarize the analysis of the results, an overall score was calculated, which enables countries to be ranked according to their capacity in LGF, HWF, HIS and SD regarding breast cancer.

In terms of overall capacity to fight breast cancer, the regional average was 37.2%, with extremes ranging from 3.3% to 66.7% (Fig. 35). The three countries that showed the highest overall capacity in the Region were Kenya, Nigeria, and Algeria, with a score equal to or above 60%. Twenty-one out of 42 countries were below the regional average.



Fig. 35. Country overall score combining leadership and governance, health workforce, health information systems and service delivery regarding breast cancer.

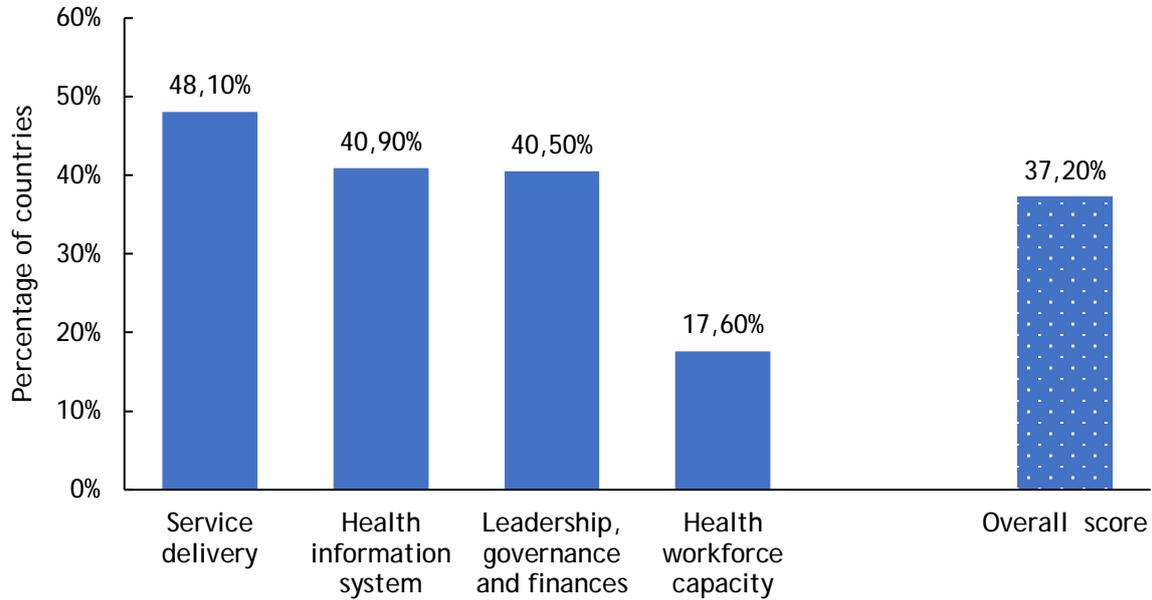


In summary, the weakest capacity in the Region is HWF with an average score of 17.60%, while the highest regional score is in SD, showing 48.10%.

HIS and LGF showed equal scores of 40% each (Fig. 36).



Fig. 36. Regional scores for various capacities in breast cancer control



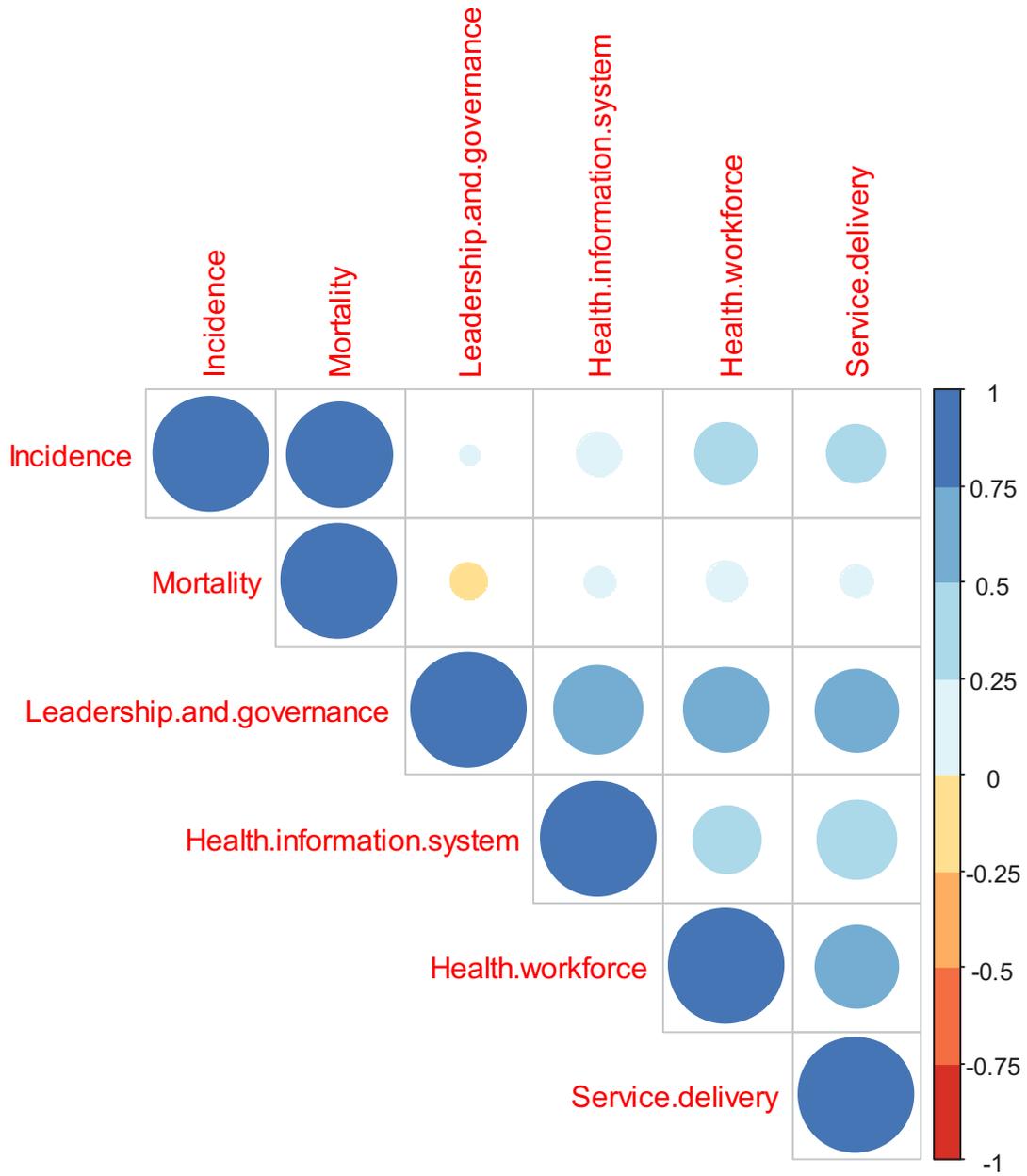
4.8. Relationship between incidence, mortality and all breast cancer capacities variables

The relationship between disease burden and country capabilities in breast cancer control was assessed using bivariate and multivariate analyses. Using scores from the principal component analysis (PCA), Fig. 37 shows a bivariate correlation between incidence, mortality and control capacity. Bivariate analysis revealed significant and positive correlations between leadership and governance (LGF) and other scores, exceeding $r=0.5$ ($p<0.05$), with HIS showing the highest correlation value ($r=0.6$, $p<0.05$). These findings indicate that the more a country invests in leadership and governance, the stronger the

health information system is, the more the health workforce is enhanced by a certain measure, and the more the service delivery improves within the country. Additionally, Kenya was driving this high correlation between LGF and SD, followed by Mozambique and Algeria. The same countries also drove the higher correlation between LDF and HWF, while Kenya and Algeria drove the higher correlation between LGF and SD (Fig. 37). The lowest values between LGF and HIS were noted for Equatorial Guinea, Gabon, Central African Republic, South Sudan and Niger. The lowest values between LGF and HWF were observed for Equatorial Guinea, Chad, Central African Republic, South Sudan, Liberia, Togo, and Benin. Finally, the lowest values between LGF and SD were for Mali, Chad, Sierra Leone, Liberia, Central African Republic, and Congo.



Fig. 37. Correlation matrix from the principal component analysis



5. Situation interpretation

The global breast cancer initiative launched in 2021, was based on three pillars with evidence-based key performance indicators (KPI). These three pillars are as follows:

Pillar one: Is based on health promotion for early detection and the KPI is that more than 60% of invasive cancers should be diagnosed at stage I or stage II.

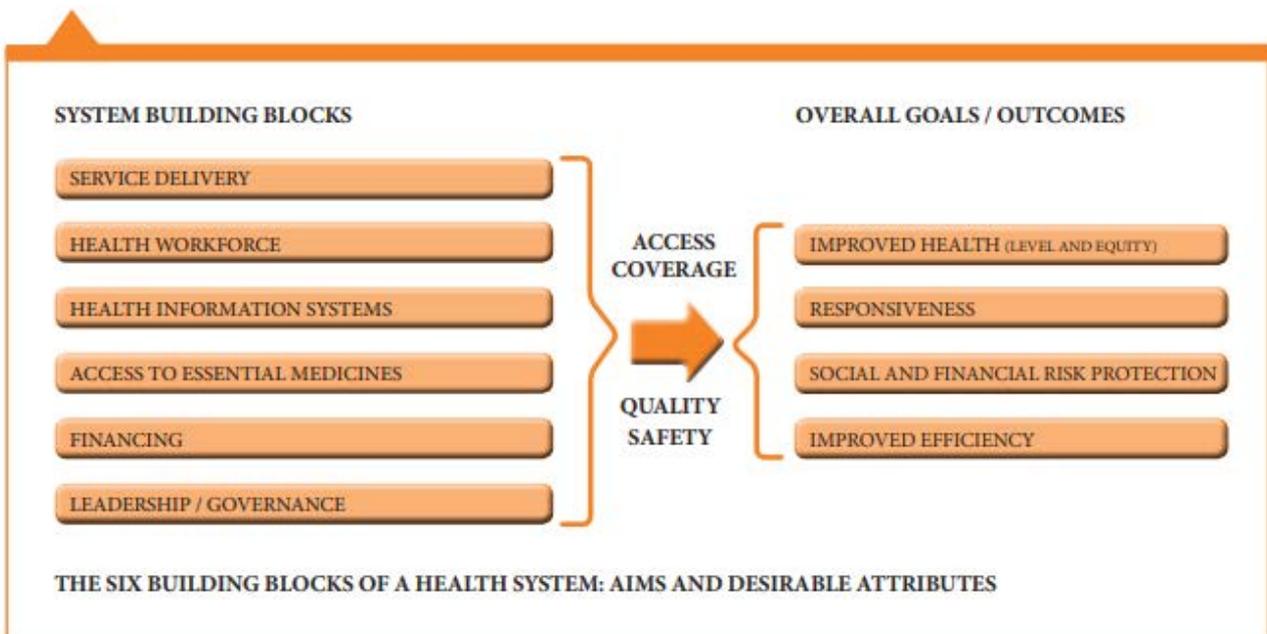
Pillar 2: Is to reach timely diagnosis of breast cancer, and the KPI is to reach this diagnosis within 60 days including imaging, tissue sampling and pathology result.

Pillar 3: Is to provide full management of breast cancer, in a multimodal way and the KPI is to have this care without treatment abandonment, for more than 80% of patients.

These three pillars encompass the six building blocks (Fig. 38) of health systems as defined by the WHO for health systems [17] and the increased

application of harmonization mechanisms for jointly channelling donor resources in countries, necessitate the development of a common framework for tracking donors' HSS expenditures. Such a framework would make it possible to comparatively analyse donors' contributions to strengthening specific aspects of countries' health systems in multi-donor-supported HSS environments. Four pre-requisite factors are required for developing such a framework: These six building blocks or subsystems, provide a practical way to analyse the health system and the effects on that system of the interventions implemented. The patient is at the centre of the process of assessing the country's capacity to screen, detect early, diagnose, manage, and monitor breast cancer for curative and palliative care. To achieve these goals all aspects of the health system must be strengthened.

Fig. 38. WHO Health Systems Framework (Shakarishvili G. Building on health systems frameworks for developing a common approach to health systems strengthening, June 25–27, 2009) [17].



In sub-Saharan Africa, women are diagnosed with breast cancer most often at an advanced stage (stage III/IV). True improvement will require far-reaching changes and momentum for system-wide capacity-building [14]. This report aims to provide an overview of the strengths, weaknesses, opportunities, and threats of breast cancer management in the WHO African Region regarding the six components of the health systems.

5.1. Governance, leadership, and health financing system for breast cancer control in the WHO African Region for: strengths, weaknesses, opportunities, and threats

Bivariate analysis found significant and positive correlations between leadership and governance (LGF) and other scores, exceeding 50%, with HIS showing the highest correlation value (60%). These results indicate that the more a country invests in leadership and governance, the stronger the health information system, the more the health workforce is strengthened to some extent, and the better service delivery in the country. Indeed, building a cost-effective cancer control programme is the ideal roadmap for implementing effective cancer control interventions and funding them in a cost-effective way. Despite the heavy burden on people in the WHO African Region, it is clear from the survey that more than 50% of countries are not investing enough in LGF in cancer control, which may explain the weakness in all the areas of the building blocks.

Among the countries with a cancer control plan, only 12 with a budgeted NCCP received funding for implementation (Algeria, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Nigeria, Rwanda, Uganda and Zambia) and two countries (Chad, Côte d'Ivoire) allocated some funds for implementation even though the plan is not budgeted. No details are given on the percentage of funding provided by the government and by partners.

However, following the WHA 70 [18], Member States were recommended to develop and implement NCCP, with adequate resources and accountability mechanisms, to provide high-quality prevention and control services for all, in line with available resources, and to achieve the goals of the 2030 Agenda for Sustainable Development Goals. Addis Ababa Action Agenda [19] recognizes that resources for funding national cancer control efforts must increasingly come from national budgets.

Financing the healthcare sector, particularly cancer care, remains a challenge for most countries in the region. While few donors specifically support cancer control, there has been a notable increase in donor investments in health systems strengthening (HSS). Therefore, the use of harmonization mechanisms to coordinate donor resources at the national level, combined with a common framework for tracking HSS-related expenditures, would allow for a comparative analysis of donor contributions to strengthening specific aspects of health systems (including cancer care) in multi-donor-supported HSS environments [17]. Four pre-requisite factors are required for developing such a framework: (i. A population-based analysis published in 2021 examined the relationship between national health system characteristics and breast cancer age-standardized mortality rates across 148 countries. The findings reveal that high-income countries generally have better health system indicators, such as higher health expenditure, Universal Health Coverage (UHC) Index, and more public cancer centres. Two key factors were significantly associated with lower breast cancer mortality rates: a higher UHC Index and an increased number of public cancer centres [20].

Availability and accessibility are major issues, although some countries are making significant efforts. There are 18 out of 42 countries (Algeria, Angola, Burkina Faso, Cape Verde, Eswatini, Gabon, Lesotho, Madagascar, Malawi, Mali, Mozambique, Niger, Nigeria, Senegal, Seychelles, United Republic of Tanzania, Uganda, Zambia) that have introduced a policy of free cancer care, but there is no detailed idea of what these covers. Given the overall weakness of governance and financing of cancer control in the Region, it would be appropriate to further analyse these free policies to determine how to make them more efficient and effective and thus have an impact on the other domains of the health system. These questions are even more relevant when we look at the overall score, which shows that only six of the 18 countries (Algeria, Mozambique, Nigeria, Seychelles, Uganda, Zambia) that have introduced a policy of free cancer care have a score of at least 50%. Three of them (Capo Verde, Mali, Niger) are even below the regional average of 37,3%.

Another important aspect is the existence of an organized programme for screening and/or early detection of breast cancer as well as standardized guidelines and protocols that can help to reduce mortality due to late diagnosis. The development of the strategic plan for cancer control, allows the various interventions to be carried out, in terms of the implementation of screening and early detection programmes, and diagnosis and



the establishment of a patient pathway, so that each suspected case receives the necessary and appropriate referral to breast cancer diagnostic services. The programme will determine the target age group, the frequency of screening and early detection interventions, and the type of test to be used, in line with international recommendations. However, an organized/ population-based screening programme cannot be properly implemented until the required infrastructure and quality control measures are fully operational. Thirty-seven countries do not have an organized screening and/or early detection programme, and 24 countries do not have national protocols and guidelines for care.

Scores for LGF range from 0% to 83.9%, with a regional average of 40.5%, which is below average. It should be noted that only 19 out of 42 countries reached a score of 50%. The following countries showed higher capacities for LGF in the Region with a score of 83% each: Mozambique, Rwanda, Lesotho, Kenya, and Algeria. Thus, the LGF must be strengthened through strong political commitment, to have a positive impact on other sectors, including the HIS, HWF and SD.

5.2. Health workforce and services delivery for breast cancer control in the WHO African Region: strengths, weaknesses, opportunities, and threats

The goal of the HCW and SD is mainly to support Pillar 2 and ensure rapid diagnosis of breast cancer, 60 days of the detection of suspicious signs. To do this, it is necessary to make available and accessible qualified human resources, combining radiological, pathological, and biological examinations. It also requires developing and implementing a well-defined patient journey and ensuring accessibility to health care services to minimize delays in diagnosis and treatment.

In 2017, global resolution WHA70.12 [18] on cancer prevention and control through an integrated approach called on the World Health Organization (WHO) to support countries to improve access to cancer prevention, diagnosis, treatment and palliative care for children and adults. Interventions must be effective and cost-efficient in low- and middle-income countries and will be applicable only when pathology services are in place. Without the identification and determination of histopathological features, effective treatment cannot be delivered.

5.2.1. Health workforce for breast cancer control

As far as human resources are concerned, they remain a major challenge in the Region, particularly for oncology. Even though some countries stand out for their number of human resources, when compared to the entire population, the score showed a very low regional average in terms of capacity (17.9%) with only five countries reaching 50% and 14 countries having a score of 0%. It thus appears that the Region has a low capacity in terms of skilled human resources and that all countries have a labour shortage (Fig. 28). Indeed, with the regular involvement of civil society organizations, there has been a steady increase in education and awareness among women about the early signs of breast cancer. This augurs well for an increasing number of cases in health centres in the future. To achieve the goal of reducing the stage of the disease at the time of diagnosis and thus reducing mortality from breast cancer, health workers will need to be trained and qualified to refer and adequately manage women with breast disease conditions.

Training the health workforce is critical to the success of any cancer control programme and to the achievement of the goals defined by the GBCI pillars. It is recommended to start this training by health workers in primary health facilities, focusing on strengthening their techniques and methods of clinical breast examination (CBE). CBE can be performed as part of early diagnosis programmes for breast cancer and is sometimes the only method used in low-income countries. On the other hand, a holistic approach is needed, with health workers sufficiently equipped in increasingly specialized areas to achieve a diagnosis within the recommended timeframe (60 days) and multimodal treatment without abandonment.

Results highlight a huge deficit and large disparities in human resource capacity for breast cancer care in African countries. While some countries have made significant progress, others are far behind. These disparities underscore the need for targeted efforts to strengthen HCW capacity in disadvantaged countries. It is noted that four countries (Algeria, Ethiopia, Kenya, Nigeria) have at least 100 pathologists, that is, a total of 63.28% (N=574) of the specialists in the Region, for 40.8% of the population of the 42 countries.

Concerning the number of radio oncologists, we noted a huge heterogeneity. In fact, a single country (Algeria) has 46.77% (N=145) of the radio oncologist available in the 42 countries. There is a total of 388 surgical oncologists in the countries



that responded to the questionnaire, of whom 277 (71.40%) are in a single country (Algeria). Similarly, Algeria and United Republic of Tanzania have the highest number of qualified oncology nurses, with 60% and 9.45% respectively.

A positive aspect noted concerning training is that the main oncology training courses exist in the three official languages of the Region (Fig. 29). Some countries have specialized training in key areas such as: pathology (21 countries), medical oncology (14 countries), surgical oncology (eight countries), radiotherapy (13 countries) and palliative care (14 countries). Countries must join forces to support training centres of excellence that will help build the capacity of health professionals across the Region. It would therefore be a good investment to have this pool of training centres in different languages in the Region. This can only become a reality if collaborative regional initiatives are developed and supported by increased training programmes and international support.

Countries need to join forces to support centres of excellence that will help build the capacity of health care professionals across the Region. It would therefore be a good investment to have a pool of training centres in different languages in the Region. This can only become a reality if collaborative regional initiatives are developed and supported by increased training programmes and international support. Due to the lack of human resources certain innovations need to be increasingly used, such as **human technology**. This involves integrating advanced technological tools with human expertise to improve the diagnosis, treatment, and management of cancer. This approach uses digital health platforms, telemedicine, artificial intelligence, and e-learning to provide continuous training, remote consultations, and real-time support for health care professionals. By enhancing the capabilities of health care professionals, human technology facilitates early diagnosis, personalized treatment plans and effective patient follow-up. This

integration is particularly crucial in resource-limited settings, as it helps to bridge gaps in health care access and quality, leading to improved patient outcomes and more effective patient care. It is measures like these that help to incentivize, relieve, and retain staff who are already overworked and understaffed.

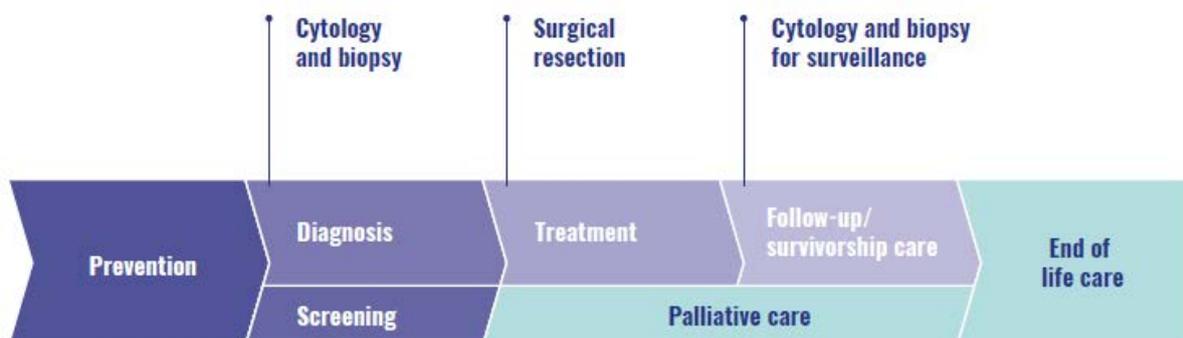
5.2.2. Service delivery for breast cancer control.

Pillar 2 of the GBCI requires timely breast diagnosis. This will ensure that the KPI selected can achieve the following: diagnostic evaluation, imaging, tissue sampling and pathology within 60 days. Statistical analysis found a high correlation between HWF and SD in countries such as Kenya and Algeria.

Medical technologies

Pathology services are a key for cancer diagnosis and are required for multiple purposes in cancer control (Fig. 39). A PALM (pathology and laboratory medicine) department requires specialized accredited physicians including a pathologist, cytologist, and microbiologist. It also requires biomedical laboratory technologists, clerical and other support staff, biomedical engineers, IT specialists, phlebotomists, etc. [21]. The survey showed that 61% of these services are available in the private sector. It should be noted that three countries do not have this service in the private sector and two countries do not have this service throughout the country.

Fig. 39. Components of cancer control and the role of pathology, World Health Organization. 2019 [21]



Although the survey shows the existence of pathology services in most countries, it does not describe patient journey or the turnaround time, nor does it provide information on the availability of the basic equipment required for a pathology laboratory, as WHO provides in a guide [21]. These recommendations cover infrastructure and equipment standards for histopathology, cytopathology, facility set-up and maintenance, as well as the skills required in terms of human resources, costing and financing of activities and even information management system.

The analysis of pathology specimens must be followed by immunohistochemical analysis. This analysis involves hormone receptors and HER2 status. Immunohistochemical analysis of breast cancer tissue provides an idea of the tumour subtype and the speed of evolution and allows clinicians to complete the treatment with hormone and/or targeted therapy. This will ensure targeted and personalized care which is essential to improve survival and ensure the follow-up of patients, particularly in a region where more than 80% of cases occur at locally advanced stages. However, 16 countries do not yet have immunohistochemistry and even for those that do, the problem of accessibility often arises. Rapid diagnosis requires an acceptable delay in the delivery of histological or cytological test results. This period is less than three weeks for 27 countries out of 42 and more than nine weeks for six countries. However, no information was provided on this service's accessibility and affordability, given that it is generally located in large cities. In many countries in the Region, there is also a shortage of remaining diagnostic equipment. Some diagnostic tools are more widely available in the private sector. This is the case for standard radiology, 67% of which is in the private sector, which could reduce its accessibility and affordability.

Mammography, which is the gold standard for screening and early detection of breast cancer, is not available in routine screening in many countries. All countries that have succeeded in sustainably reducing age-standardized breast cancer mortality rates by 2% or more per year, for at least three consecutive years, have achieved this through mammography [22]. Despite this progress, there are still ten countries in the Region that do not have functional mammography machines in the public sector (Comoros, Guinea, Guinea-Bissau, Equatorial Guinea, Lesotho, Liberia, Namibia, Niger, Sierra Leone, South Sudan). Two of them do not have mammography machines at all (Guinea-Bissau, South Sudan). There are only six countries (Algeria, Kenya, Nigeria, Spain, Uganda, Zimbabwe) that have

more than ten machines in the public sector, of which Algeria has 168 in the public sector and 116 in the private sector. Although the screening methods used are mammography with or without ultrasound in 22 countries, this does not indicate that this screening is widely available and affordable. If we relate this number to the population, we see that in all the countries there is between 0 and 10 machines per 200 000 inhabitants. The regional level is still low, with only six countries having at least one device for every 200 000 inhabitants.

Sixteen countries had less than five CT scanners (Fig. 19). Magnetic resonance imaging (MRI) helps detect specific cases of breast cancer that cannot be detected by mammography. It also allows follow-up in patients with a particular profile (history of breast surgery, patient with breast prosthesis, etc.). More than 90% of countries have 0 to 5 MRI machines. The survey identified 226 machines in 42 countries (Fig. 20), while the IAEA counted 335 in 49 countries in sub-Saharan Africa [23]. This raises the question of the functionality of certain diagnostic services listed in the countries. Nuclear medicine services are available in only 19 out of 42 countries (Fig. 21) with frequent interruptions in service delivery, particularly of scintigraphy. Africa has a total of 74 services, or 5.18% of global availability [24].

Health services for breast cancer care

The majority of breast cancer care is provided in national hospitals (25 countries) and university centres (25 countries). Only 20 countries mention the availability of treatment in a cancer centre (Fig. 22).

“ The regional level is still low, with only six countries having at least one device for every 200 000 inhabitants. ”

”

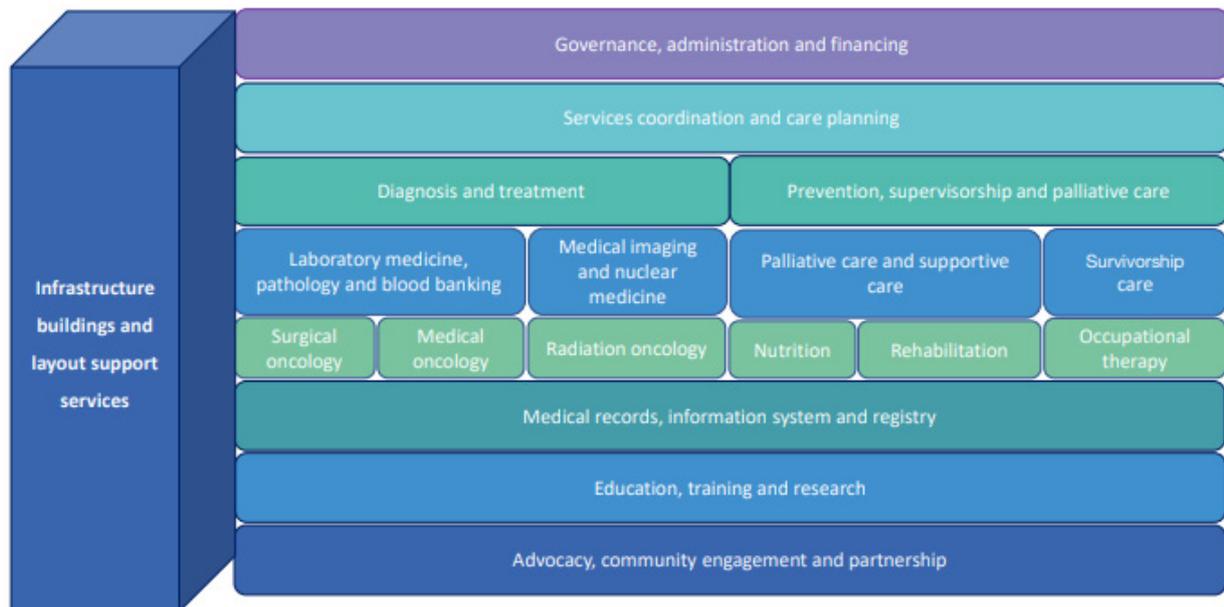


However, it was uncertain if the definition of cancer centres was well understood by respondents to the questionnaires. Many answered “yes” just for centres that treat cancer, without checking whether all the key elements are represented. Indeed, the WHO/IAEA have defined these centres as cancer control structures, which serve as referral institutions for all aspects of cancer control and play an essential role in the implementation and achievement of country objectives. Education, guidance, capacity building, development of service models and provision of technical support to government and partners are some of the main responsibilities of the cancer centre. To qualify as a cancer treatment centre, certain prerequisites must be met, both in terms of

infrastructure and human resources [20]. Thirteen countries that responded “yes” did not even have a radiotherapy machine (Benin, Burundi, Centre Afrique Republic, Chad, Comoros, Congo, Guinea, Guinee-Bissau, Lesotho, Malawi, Sao Tome et Principe, Seychelles, Sierra Leone, South Sudan).

The management of breast cancer must be multidisciplinary, combining several therapeutic modalities, including surgery, radiotherapy, systemic treatments, palliative care, and rehabilitation, according to evidence-based guidelines, and adapted to the specific needs of the newly diagnosed. This also requires better access to essential medicines and health products (Fig. 40).

Fig. 40. Schematic representation of the elements of a cancer centre, WHO-IAEA framework. [20]



Surgery

Oncological surgery is the cornerstone of breast cancer treatment. It is also used for breast reconstruction with or without prosthesis. This reconstruction is available in 19/42 countries without specifying whether it is systematic and whether it benefits from support. In surgery, initial and continuing training is essential because non-oncologic surgery cannot be overtaken by other adjuvant treatments (chemotherapy, radiotherapy) and will be a factor of recurrence. There are 386 surgical oncologists in the 42 countries, including 277 from Algeria and only 7/42 countries offer this training (Algeria, Angola, Ethiopia, Kenya, Mozambique, Nigeria, Senegal, Zimbabwe).

Radiotherapy

It is one of the key elements of breast cancer treatment. It avoids local recurrence. However, 18/42 countries do not yet have radiotherapy in both the public and private sectors, including seven of those with the highest burden of cervical cancer (Burundi, Comoros, Eswatini, Guinea, Lesotho, Liberia, Malawi).

Most of these 18 countries have a linear accelerator, except two countries (Niger, Mali), which still have only cobalt therapy.



Chemotherapy, hormonotherapy and other adjuvant therapies

Chemotherapy services are available in 37/42 countries. Targeted therapies such as Trastuzumab are unavailable in ten countries (Benin, Burundi, Congo, DRC, Ethiopia, Guinea, Madagascar, Malawi, Niger, Sierra Leone) and even where they are available their accessibility is low. Cancer drugs such as 5FU, doxorubicin, cyclophosphamide and docetaxel are generally available, but the problem of financial accessibility sometimes arises. Treatment is usually administered by a small team of doctors and oncologic nurses.

Palliative care

The survey reported that palliative care services are available in 31/42 countries, but often poorly organized or equipped with both material and human resources. Oral morphine is a key element in this palliative care and its access rate is more than 50% in 15 countries, while it ranges from 5 to less than 50% in the others. Although there has been slight progress in opioid access for LMICs, from around 8% [25] in 2014 to around 10 [26] in 2018, this remains insufficient. Given that the vast majority, 76%, of the 53 million adults (2017) in need of palliative care live in low- and middle-income countries (LMICs), access to opioids remains insufficient. WHO, with the support of its collaborating centres, supports the development of many tools as well as implementation in the Region and it must be an opportunity to strengthen many palliative care aspects. South-South cooperation is another way to improve this neglected area as some countries have a lot of best practices to share.

5.3. Access to essential medicine for breast cancer care in the African Region: strengths, weaknesses, opportunities, and threats

All countries reported having access to different anti-cancer drugs for chemotherapy. However, there have been several supply shortages of certain commonly used cancer drugs. Access to certain targeted therapies and hormone therapies that are essential for treating patients is still a challenge for many countries. When it comes to palliative care, which requires morphine, less than 50% of countries in the Region have access to it, and where it is available, it is not routinely available in more than half of cases.

5.4. Health system information in the African Region: strengths, weaknesses, opportunities, and threats

The findings of the bivariate analysis indicate that the more a country invests in leadership and governance, the stronger its health information system (HIS) tends to be. Recording cancer data and monitoring changes over time allows developing comprehensive measures to assess the results and impact of the Global Breast Cancer Initiative in both the short and long term. These collected data form the basis for national and global estimates of cancer burden, facilitate comparisons between countries, support informed decision-making, and ensure that progress is successfully tracked and evaluated. Population-based cancer registries (PBCR) are essential for assessing the burden of cancer and monitoring and evaluating national progress in cancer surveillance and control. In the African Region, 24 out of 42 countries have functional PBCRs, but according to the African Cancer Registry Network (AFCRN), only a few of these registries have high-quality and accurate data. The obstacles to their functioning are multiple, primarily due to the lack of institutional anchoring, with only half of them under the supervision of the ministry of health. This highlights how governance and financing are closely linked to the quality of the HIS.

To provide countries with opportunities to strengthen their HIS, IARC/WHO collaborating centres were established in 2022 by the AFCRN to offer technical support and enhance the capacity of cancer registries. These centres are located in Abidjan for French-speaking countries in sub-Saharan Africa, Nairobi for English-speaking Africa, and South Africa as a special hub for databases on breast, cervical, and childhood cancers. Despite these efforts, the regional survey findings indicate significant gaps in HIS for-breast cancer, with many countries lacking comprehensive cancer registries and limited integration of breast cancer data into electronic systems. This shortfall hampers effective surveillance, data analysis, and policymaking, underscoring the need for enhanced efforts to develop and implement electronic cancer registration systems across the Region. Improving HIS for-breast cancer is crucial for tracking incidence, treatment outcomes, and mortality, thereby informing better resource allocation and intervention strategies.



6. Conclusions

The assessment of the breast cancer care capacity in the African Region highlights significant gaps and challenges in leadership, governance and financing, human resources, infrastructure, diagnostic capabilities, and health care delivery. Despite some progress, notably the development of national cancer control plans (NCCPs) in several countries and the availability of essential oncology training courses, the Region still faces numerous barriers in achieving the Global Breast Cancer Initiative (GBCI) goals.

Key findings include:

- **Governance and financing:** Many countries lack comprehensive cancer control programmes and consistent funding. Even where NCCPs exist, their implementation is often weak due to lack of funding.
- **Human resources and training:** There is a severe shortage of qualified oncology professionals. Training opportunities are available in the three languages of the Region but insufficient to meet regional needs.
- **Service delivery and diagnostics:** Infrastructure for diagnostics, such as mammography and pathology services, is inadequate and unevenly distributed. This hinders timely and accurate diagnosis which is key for timely breast diagnosis.
- **Access to medicines:** While chemotherapy drugs are generally available, there are frequent shortages and limited access to targeted therapies and palliative care drugs.
- **Health information systems:** Functional population-based cancer registries (PBCR) exist but often lack high-quality data and institutional support.
- **Summarized performance scoring of the countries**

Calculating scores allowed identification of areas for improvement to meet the GBCI goals. The overall performance score allowed assessment of the breast cancer control capacities of the countries that responded to the survey. It summarized all the previous findings. Cancer control capacities in the African Region is very weak in many areas of the six WHO building blocks, but mostly in terms of health workforce capacity.

The overall performance score reveals significant regional disparities, with an overall capacity in breast cancer control averaging 37.3%. Leadership, governance, and financing average 40.5%, with highs in Mozambique and lows in Comoros and Equatorial Guinea. Service delivery scores average 48.1%, with Seychelles excelling, and Sao Tome and Principe and Guinea-Bissau lagging. Health workforce capacity is critically low, averaging 17.9%, with 14 countries scoring 0%. Health information systems (HIS) show an average capacity of 40.9%, with Zambia, Malawi, Kenya, Ghana, and Cameroon performing well, while several countries score 0%. Top overall performers Kenya, Nigeria, and Algeria exceed 60%, demonstrating the potential for regional leaders to inspire improvements. Despite widespread weaknesses, seven countries achieving at least 50% capacity highlight areas for strategic enhancements to meet global cancer control goals.

In summary, a few countries demonstrated stronger capabilities and can serve as models for improvement. To achieve the GBCI goals and improve breast cancer care in the African Region, comprehensive and coordinated efforts are required across some aspects of the health care system. In fact, this evaluation will enable targeted action to be taken in each area, given that countries have made more efforts in some areas than in others.



7. Recommendations

Results of the analyses suggest that investments in leadership and governance is a necessary step towards the strengthening of other domains of the building blocks. This also reaffirms the need for WHO and partners to increase the level of assistance in the leadership and governance aspects, guiding the national policies for an increased capacity of breast cancer control. Health workforce is also a priority domain for countries and donors to invest in, given the needs and difficulties created by a competitive international labour market. However, the overall low score is a reminder not to neglect the other domains, namely health information systems and service delivery. Such strategic direction is especially critical in shaping successful cancer control strategies, highlighting the necessity for continued and focused efforts in these areas. The following action must be taken:

7.1. Strengthen governance and financing:

- Advocate for strong political commitment and allocate sufficient national budgets to cancer control.
- Achieve financial incentives with higher salaries to reduce labour exodus.
- Integrate cancer control programmes into broader noncommunicable disease (NCD) frameworks to leverage existing resources and infrastructure.
- Progressively establish strong breast cancer screening/early detection programme in the countries.
- Tackling economic difficulties and all the factors that delay access to care, including distance from the facility, knowledge of the health care provider, referral system, diagnosis and treatment delays, and make diagnosis and care affordable for breast cancer.

7.2. Collaborative efforts are needed as regional cooperation:

- Foster regional collaborations to share resources, expertise, and best practices.

- Establish networks for telemedicine and remote consultation, enabling specialists in well-resourced areas to support those in less-resourced regions.
- Foster regional collaboration:
 - By encouraging South-South cooperation to share best practices, resources, and expertise across countries in the Region.
 - By using regional networks and collaborations to strengthen capacity-building, research, and policy development.

7.3. Public-private partnerships:

Engage with private sector stakeholders to fund and support health care initiatives, including training, infrastructure development, and research.

Implement tax benefits for the private sector to support in cancer prevention, diagnosis and treatment services.

7.4. Expand and enhance training programmes:

- Strengthening south-south cooperation by establishing regional training centres of excellence for oncology training in the three languages to provide specialized education for oncologists, pathologists, radiotherapists, and other essential staff to address the shortage of qualified professionals.
- Implement ongoing training programmes to keep health care professionals updated with the latest advancements in breast cancer care.
- Partner with international medical institutions to offer scholarships and exchange programmes for advanced training.



7.5. Improve diagnostics infrastructure:

- Invest in diagnostics services and equipment by building and equipping medical facilities with necessary technology and equipment for diagnosis and treatment, such as radiotherapy machines, pathology laboratories, IHC, mammography machines, scanners, prioritizing public sector facilities and underserved areas.
- Establish robust quality control measures to ensure the availability, affordability, accuracy and reliability of diagnostics tests.

7.6. Ensure consistent access to essential medicines:

- Strengthen procurement and supply chain management to prevent shortages of cancer drugs.
- Enhance access to targeted therapies and palliative care medications, particularly opioids for pain management.

7.7. Enhance health information system:

- Develop robust health information systems to collect, manage, and analyse data on breast cancer cases and human resource availability.
- Support the development of and maintain high-quality population-based cancer registries (PBCRs).
- Ensure PBCRs are institutionally anchored and supervised by the ministry of health to improve data quality and use for action.

- Develop innovative patient navigation systems linked to the gathering of data, which will be used as a dashboard to evaluate progress in the breast cancer control programme.

7.8. Promote public awareness and early detection:

- Develop and implement widespread public education communication plan to raise awareness about the early signs and symptoms of breast cancer.
- Engage communities in screening and early detection initiatives to increase early-stage diagnosis rates.

7.9. Facilitate multidisciplinary and integrated care:

- Develop and implement well-defined patient pathways to ensure timely and coordinated care from diagnosis through treatment and follow-up.
- Promote multidisciplinary approaches to breast cancer management, combining surgery, radiotherapy, chemotherapy, and supportive care.

By implementing these strategic actions, countries in the WHO African Region can build a more robust and equitable health care system for breast cancer care, ultimately improving patient outcomes and reducing mortality rates.



8. References

1. National Cancer Institute. NCI Dictionaries. Available at: <https://www.cancer.gov> Accessed 5 June 2024.1. National Cancer Initiative. NCI Dictionary of Cancer Terms - NCI [Internet]. 2011 [cited 2024 Jun 5]. Available from: <https://www.cancer.gov/publications/dictionaries/cancer-terms/>
2. World Health Organization. Breast cancer [Internet]. [cited 2024 Sep 24]. Available from: <https://www.who.int/news-room/fact-sheets/detail/breast-cancer>
3. World Health Organization. The Global Breast Cancer Initiative [Internet]. 2024 [cited 2024 Sep 23]. Available from: <https://www.who.int/initiatives/global-breast-cancer-initiative>
4. Ferlay J, Ervik M, Lam F, Laversanne M, Colombet M, Mery L, et al. Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer [Internet]. [cited 2024 Sep 24]. Available from: <https://gco.iarc.who.int/today>
5. McCormack V, McKenzie F, Foerster M, Zietsman A, Galukande M, Adisa C, et al. Breast cancer survival and survival gap apportionment in sub-Saharan Africa (ABC-DO): a prospective cohort study. *Lancet Glob Health*. 2020 Sep;8(9):e1203–12.
6. WHO, International Agency for Research on Cancer. Breast Cancer Outcomes in Sub-Saharan Africa [Internet]. [cited 2024 Sep 24]. Available from: https://www.iarc.who.int/wp-content/uploads/2021/03/IARC_Evidence_Summary_Brief_1.pdf
7. Jedy-Agba E, McCormack V, Adebamowo C, Dos-Santos-Silva I. Stage at diagnosis of breast cancer in sub-Saharan Africa: a systematic review and meta-analysis. *Lancet Glob Health*. 2016 Dec;4(12):e923–35.
8. 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 Lond Engl*. 2018 Mar 17;391(10125):1023–75.
9. Global Burden of Disease Cancer Collaboration. Global, Regional, and National Cancer Incidence, Mortality, Years of Life Lost, Years Lived With Disability, and Disability-Adjusted Life-Years for 29 Cancer Groups, 1990 to 2017: A Systematic Analysis for the Global Burden of Disease Study. *JAMA Oncol* [Internet]. 2019 Dec 1 [cited 2024 Sep 24];5(12):1749–68. Available from: <https://doi.org/10.1001/jamaoncol.2019.2996>
10. Dalton M, Holzman E, Erwin E, Michelen S, Rositch AF, Kumar S, et al. Patient navigation services for cancer care in low-and middle-income countries: A scoping review. *PLoS One*. 2019;14(10):e0223537.
11. World Health Organization. Global breast cancer initiative implementation framework: assessing, strengthening and scaling up of services for the early detection and management of breast cancer: executive summary [Internet]. World Health Organization; 2023 [cited 2024 Sep 23]. Available from: <https://iris.who.int/handle/10665/365784>
12. World Health Organization 2006. Planning - Cancer Control Knowledge into Action WHO Guide for Effective Programmes | WHO | Regional Office for Africa module 1 World Health Organization. II. Series [Internet]. 2024 [cited 2024 Sep 23]. Available from: <https://www.afro.who.int/publications/planning-cancer-control-knowledge-action-who-guide-effective-programmes>



13. World Health Organization. Rehabilitation Factsheet [Internet]. [cited 2024 Sep 24]. Available from: <https://www.who.int/news-room/fact-sheets/detail/rehabilitation>
14. International Atomic Energy Agency. Cancer treatment: Radiotherapy [Internet]. IAEA; 2016 [cited 2024 Sep 24]. Available from: <https://www.iaea.org/topics/cancer-treatment-radiotherapy>
15. World Health Organization Regional Office for Africa. Integrated disease surveillance and response in the African Region: a guide for establishing community-based surveillance [Internet]. [cited 2024 Sep 23]. Available from: <https://iris.who.int/bitstream/handle/10665/325015/WHO-AF-WHE-CPI-05.2019-eng.pdf?sequence=1>
16. Piñeros M, Saraiya M, Baussano I, Bonjour M, Chao A, Bray F. The role and utility of population-based cancer registries in cervical cancer surveillance and control. *Prev Med*. 2021 Mar;144:106237.
17. Shakarishvili G, Lansang MA, Mitta V, Bornemisza O, Blakley M, Kley N, et al. Health systems strengthening: a common classification and framework for investment analysis. *Health Policy Plan*. 2011 Jul;26(4):316–26.
18. UN General Assembly. Cancer prevention and control in the context of an integrated approach: Report by the Secretariat [Internet]. [cited 2024 Sep 24]. Available from: https://apps.who.int/gb/ebwha/pdf_files/wha70/a70_32-en.pdf
19. UN General Assembly. Resolution adopted by the General Assembly on 27 July 2015. A/RES/69/313 Addis Ababa Action Agenda of the Third International Conference on Financing for Development (Addis Ababa Action Agenda) [Internet]. 2015 Jul [cited 2024 Jan 23]. Report No.: A/RES/69/313. Available from: https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_69_313.pdf
20. International Atomic Energy Agency. Setting Up a Cancer Centre: A WHO–IAEA Framework [Internet]. [cited 2024 Sep 24]. Available from: https://www-pub.iaea.org/MTCD/publications/PDF/P1989_web.pdf
21. World Health Organization. Guide for establishing a pathology laboratory in the context of cancer control. Geneva: World Health Organization; 2019. Licence: CC BY-NC-SA 3.0 IGO. [Internet]. Geneva; 2019 [cited 2024 Sep 23]. Available from: <https://iris.who.int/bitstream/handle/10665/330664/9789241516938-eng.pdf?sequence=1>
22. Duggan C, Trapani D, Ilbawi AM, Fidarova E, Laversanne M, Curigliano G, et al. National health system characteristics, breast cancer stage at diagnosis, and breast cancer mortality: a population-based analysis. *Lancet Oncol*. 2021 Nov;22(11):1632–42.
23. International Atomic Energy Agency. Human Health Campus - Database & Statistics [Internet]. [cited 2024 Jun 5]. Available from: <https://humanhealth.iaea.org/HHW/DBStatistics/index.html>
24. International Atomic Energy Agency. Nuclear Medicine DataBase (NUMDAB) [Internet]. IAEA; 2022 [cited 2024 Jun 5]. Available from: <https://www.iaea.org/resources/hhc/nuclear-medicine/databases/numdab>
25. World Health Organization. Integrating palliative care and symptom relief into primary health care: a WHO guide for planners, implementers, and managers [Internet]. 2018 [cited 2024 Sep 23]. Available from: <https://iris.who.int/bitstream/handle/10665/274559/9789241514477-eng.pdf?sequence=1>
26. World Health Organization. WHPCA (WHPCA). Global Atlas of Palliative Care [Internet]. 2nd ed. 2020 [cited 2024 Feb 3]. 120 p. Available from: [https://cdn.who.int/media/docs/default-source/integrated-health-services-\(ihs\)/csy/palliative-care/whpca_global_atlas_p5_digital_final.pdf?sfvrsn=1b54423a_3](https://cdn.who.int/media/docs/default-source/integrated-health-services-(ihs)/csy/palliative-care/whpca_global_atlas_p5_digital_final.pdf?sfvrsn=1b54423a_3)



9. Annexes

9.1. Data and methods

9.1.1. Data collection and validation

An online questionnaire (Annex 4) was developed in the three official languages of the WHO African Region and posted on Microsoft Forms. The questionnaire was divided into three main sections: i) Governance; ii) Equipment/ infrastructure and human resources iii) Health systems and surveillance.

WHO Country Offices of the 47 Member States in October 2021 requested the designation of a focal point at the ministry of health level to respond to the regional survey. Five countries were not able to respond (Comoros, Gambia, Eritrea, Mauritania, South Africa).

Cross checking of the answers was made by the WHO Regional Office using existing data sources and documentation as well as interactions with responders. Bilateral discussions were initiated to collect additional information and documents with the responding countries for conflicting information. The survey was closed in July 2022 with 42 responding countries.

9.1.2. Analyses

Data analyses were organized regarding the six-building blocks of WHO: (i) Service delivery (SD), (ii) Health workforce (HWF), (iii) Health information systems (HIS), (iv) Access to essential medicines, (v) Financing, and (vi) Leadership/ governance (LGF). Focus was made on the three pillars of GBCI to analyse the strengths, weaknesses, opportunities, and threats (SWOT) of breast cancer control in the WHO African Region.

Creating Scores

To summarize multiple indicators and assess progress made by Member States according to the WHO building blocks previously mentioned, a scoring method was developed.

For Leadership and governance (LGF), one point was attributed for a positive answer to the questions below:

- Existence of a strategic plan for cancer control in the country
- Existence of a cancer focal point at ministry of health
- Existence of free cancer policy
- Existence of an organized cancer screening and/or early diagnosis programme
- Availability of national treatment guidelines for breast cancer
- Existence of rehabilitation and reintegration services for cancer survivors

For Health workforce (HWF) points were attributed as follows:

Availability of training in oncology:

- One point was attributed for the availability of each category of training: “Adult medical oncology,” “Surgical oncology,” “Pathology,” and “Radiotherapy”.

Human resources:

- One point was attributed to all those that met the predefined standards below in terms of human resources cited: availability of one radiation oncologist for 100 000 inhabitants, availability of one radiologist for 100 000 inhabitants, availability of one pathologist for 100 000 inhabitants, availability of one medical oncologist for 100 000 inhabitants.

For Service delivery (SD) scoring one point was attributed for those that met the predefined standards below:

- Pathology services: One or more pathology laboratories
- Immunohistochemistry: If the country answered “Available”



- Time to delivery pathology results: If the time to deliver pathology results is less than or equal to four weeks in the country.
- Availability of CT scan: If the country had at least five functional CT scans for 1 million people
- Availability of MRI: If the country had at least five functional MRI machines for 1 million people
- Availability of Nuclear medicine services: one point if the country had one or more functional nuclear medicine services.
- Availability of cancer centre: If the country had one or more cancer centres
- Availability of chemotherapy: If the country answered “Available”.
- Availability of radiotherapy devices: If after the calculation the country had at least one device for 180 000 inhabitants.
- Availability of palliative care services: If the country answered “Available”.

For Health information system (HIS) scoring:
zero to two points attributed to those who met the predefined standards below:

- Availability of cancer surveillance and registry – The score for this indicator was equal to zero if the country answered “No cancer registries” to the question “What types of cancer registries exist in the country?”
- As for availability of cancer surveillance and registry, two points were allocated if the country answered “Population-based cancer registries” to the question “What types of cancer registries exist in the country?”. These two points were allocated due to the importance of cancer registration for cancer control monitoring and evaluation (16).
- Availability of cancer surveillance and registry – One point was allocated if the country answered “hospital-based cancer registries” to the question “What types of cancer registries exist in the country?”
- Availability of cancer surveillance and registry – One point was allocated if the country answered “Histology-based cancer registries” to the question “What types of cancer registries exist in the country?”

- Availability of cancer surveillance and registry – One point was allocated if the country answered “Other electronic cancer registration system (DHIS 2, HIS)” to the question “What types of cancer registries exist in the country?”

A global score considering all previously mentioned scores was calculated. For each country, the calculation used the sum of all the points in all the domains as a numerator and total possible points from all domains as denominator. Results were multiplied by 100 to obtain percentages.

Statistical analysis

Correlations tests were performed between all variables created from the survey and mortality rates of breast cancer for the year 2022. The significant threshold was set at 0.05.

Principal component analysis (PCA) was performed to assess the relationship between various scores created from the survey and the mortality and incidence rates of breast cancer. They included mortality, incidence, and all scores previously described (LGF, HIS, HWF, and SD).

Statistical analyses were performed using STATA 15 software (Stata Corporation) and R. Visualizations were created using Tableau Desktop 2022, Excel 365, and R.

9.2. Limitations

Answers to the questions were relying on local experts' knowledge at the ministries of health in the African Region. The accuracy of the answers therefore largely depends on the extent and quality of their knowledge on the subject matters.

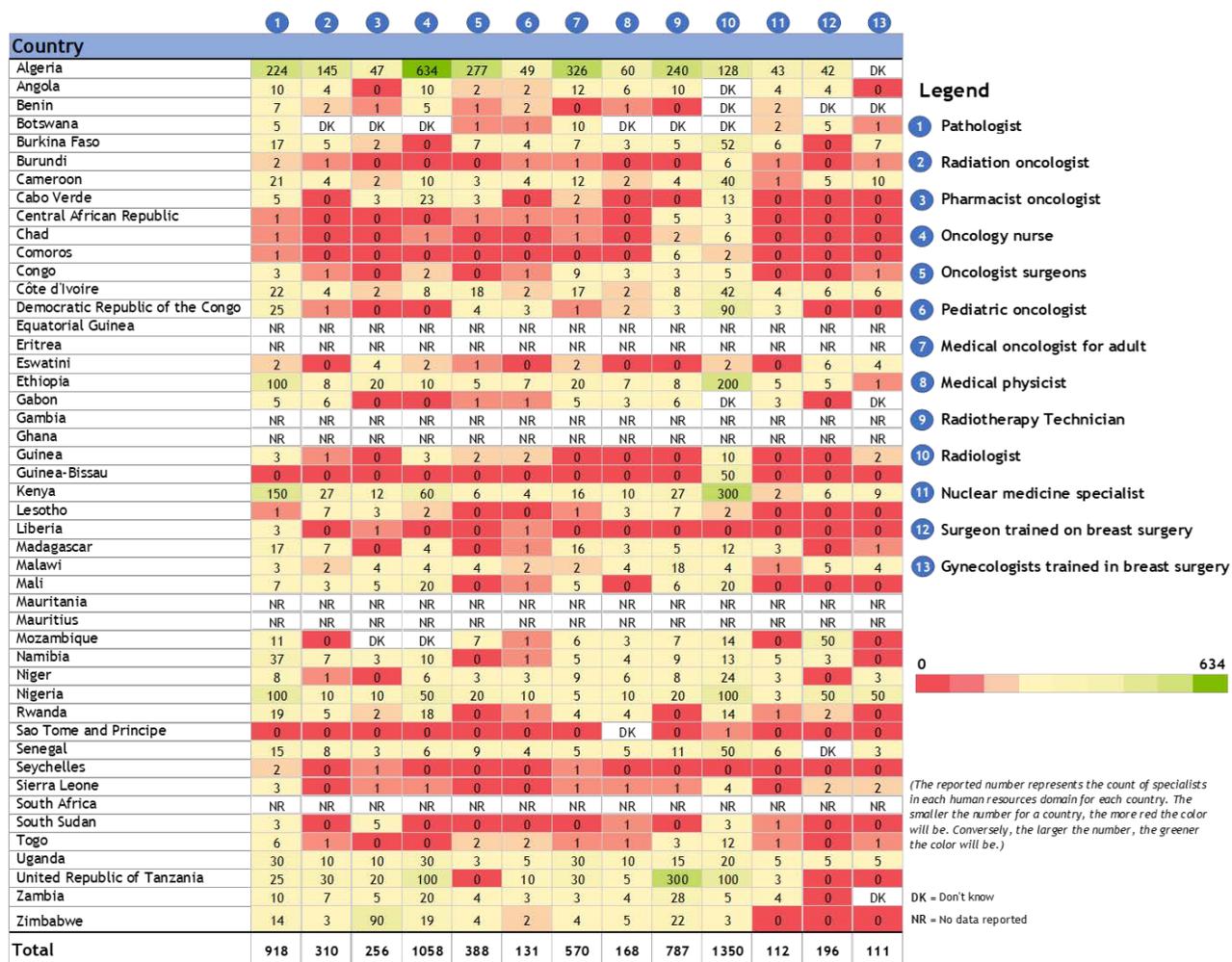
In building scores for each component of the building blocks, a logical and simplistic points allocation method was used, referring to globally defined criteria for most of them. However, there is always a part of subjectivity in allocating points. Using a statistical method such as PCA to build components did not make sense in the case of this study, because the logic of the study was to assess the capacities by predefined building blocks.

Despite precautions in using adapted methods for types of population distributions, the statistical population of 42 countries is reduced and can therefore affect the strength of the results.



10. Additional results

Heat map of the number of specialists by countries



11. The questionnaire

Country profile on breast cancer control capacity 2021

Objective:

- To assess your country's capacity to control breast cancer
- To assess the country's needs for breast cancer control (national planning, infrastructure and human resources, prevention, early detection, diagnosis, treatment, palliative care, surveillance, and registration)
- To help plan future actions and technical assistance needed to meet the challenges of breast cancer control.

Methods:

- To conduct the survey and ensure its implementation
- Online questionnaire in the official WHO languages in the African Region
- Bilateral discussions to verify and complete the data provided

1. **Country**

2. **Respondent 's information: Name and surname**

3. **Institution**

4. **Position**

5. **Contact details (Tel. WhatsApp. email)**

6. **Sources of information consulted**

7. **Institutionally: Is there an updated national cancer prevention and control programme or plan (NCCP) or equivalent at the ministry of health level?**

- A cancer plan is currently being drafted
- A cancer plan is currently being developed
- A cancer plan existed but at this time it is due for renewal



8. If “yes” Is the NCCP costed?*If no NCCP tick NA (not applicable)*

- Yes
- No
- NA

9. If “Yes” is the NCCP funded?*If no NCCP check NA (not applicable)*

- Yes
- No
- NA

10. **If the NCCP is funded, what is the percentage from the ministry of public health budget? or what is the amount of funding in 2020? What is the total amount of funding received in 2020?**

11. **Who are the other partners funding the NCCP?**

12. **Is there an NCD unit in the ministry of health? ***

- Yes
- No

13. **Is there a cancer focal point at the ministry of health? ***

- Yes
- No

14. **Does the NCCP include breast cancer control?**

- Yes
- No

15. **Is there a national policy of free cancer care in public health facilities?**

- Yes
- No

16. **This no-cost approach covers which of the following cancers?**

- Not free of charge
- Breast cancer



- Gynaecological cancers
- Childhood cancers
- Prostate cancer

17. Is there a policy for the rehabilitation and reintegration of cancer survivors?

- Yes
- No

18. What types of cancer registries exist in the country? one or more answers are possible

- population-based registries
- hospital registries
- histology registries
- No cancer registries in the country

19. Who is responsible for the country's cancer registry? *

- Pathology laboratory
- Ministry of health
- Faculty of medicine
- National hospital
- National statistics service
- Not applicable

20. What other system for recording cancer data does the country have besides registries?

21. Is there a breast cancer screening and/or early detection programme?

- Yes
- No

22. If "yes" what type of coverage does the programme have? if none, tick NA (not applicable)

- National and organized
- Opportunistic
- Pilot project
- Regional and organized
- NA

23. If the programme exists: What tests does the programme use? (Several answers are possible)

- Breast self-examination



- Clinical breast examination
 - Mammography
 - Breast ultrasound
 - No programme
24. **At which age does early detection of breast cancer start and end in the national programme? *in years***
25. **How many radiology units does the country have in the public sector? *in numbers***
26. **How many radiology units does the country have in the private sector? *in numbers***
27. **How many functional mammography equipment does the country have in the public sector? *in numbers***
28. **How many functional mammography equipment does the country have in the private sector? *in numbers***
29. **How many functional CT scan (public and private sector) devices are there in the country? *in numbers***
30. **How many functional MRI devices does the country have? *in numbers***
31. **How many functional PET scans does the country have?**
32. **How many functional nuclear medicine departments (scintigraphy etc.) does the country have?**
33. **How many pathology laboratories does the country have in the public sector?**
34. **How many pathology laboratories does the country have in the private sector?**
35. **Is there an availability of tumour markers (immunohistochemistry) for breast cancer?**
- Yes
 - No
36. **What is the average time to get an histology result? select an answer**
- Yes 2 weeks
 - No 3 weeks
 - 1 month
 - 2 months and more



37. Where does cancer treatment take place?

- University hospital
- National hospital
- Regional hospital
- Cancer centre

38. How many cancer centres in the public sector?

- 0
- 1
- 2
- 3
- 4
- More than 5

39. How many cancer centres in the private sector?

- 0
- 1
- 2
- 3
- 4
- More than 5

40. How many radiotherapy units in the public sector?

- 0
- 1
- 2
- 3
- 4
- More than 5



41. How many radiotherapy units in the private sector?

- 0
- 1
- 2
- 3
- 4
- More than 5

42. What types of radiotherapy are available in the country? (Several choices possible) If no radiotherapy check NA

- Cobalt therapy
- Particle accelerator
- Curitherapy
- NA

43. Is chemotherapy available?

- Yes
- No

44. Are chemotherapy drugs included in the country's essential medicines list? *

- Yes
- No

45. Check the breast cancer drugs that are always available in the country

- 5 fluoro uracile
- doxorubicin or adriamycin
- cyclophosphamid
- docetaxel or Taxotere *
- paclitaxel
- cysplatin
- Trastuzumab
- tamoxifen
- antiaromatase
- None available



46. Check the breast cancer drugs that are frequently non available in the country

- 5 fluoro uracile
- Doxorubicin or adriamycin
- Cyclophosphamid
- Cocetaxel or Taxotere *
- Paclitaxel
- Cysplatin
- Trastuzumab
- Tamoxifen
- Antiaromatase
- None are unavailable

47. Check the breast cancer drugs that are always non available in the country

- 5 fluoro uracile
- Doxorubicin or adriamycin
- Cyclophosphamide
- Docetaxel or Taxotere*
- Paclitaxel
- Cysplatin
- Trastuzumab
- Tamoxifen
- Antiaromatase
- All medicines are available

48. Are there any universities or colleges in the country that are competent to provide the following specialized training? (several answers are possible)

- Oncologic surgery
- Medical oncology
- Gynaecological oncology
- Radiation oncology
- Pathology
- Palliative care
- Paediatric oncology
- No training available



49. **Is breast reconstruction surgery performed in the country?**
- Yes
 - No
50. **Is there an availability of breast implants for breast reconstruction after breast surgical removal for cancer?**
- Yes
 - No
51. **What is the number of oncologic surgeons in the country?**
52. **Number of pathologists in the country?**
53. **Number of pharmacists trained in the preparation of chemotherapy and/or morphine syrup?**
54. **Number of nurses** (*specialized in oncological care: chemotherapy, oncologic surgery, palliative care...*)
55. **Number of medical oncologists for adults**
56. **Number of paediatric oncologists**
57. **Number of radiotherapists**
58. **Number of medical physicists**
59. **Number of radiologists**
60. **Number of radiotherapy technicians**
61. **Number of specialists in nuclear medicine**
62. **Number of general surgeons with a focus on senology**
63. **Number of gynaecologists with a focus on senology**
64. **Are there national guidelines for breast cancer management?**
- Yes
 - No
65. **Are there multidisciplinary consultation meetings in oncology?**
- Yes
 - No
66. **Are palliative care services available in public health facilities for cancer patients?**
- Yes
 - No



**67. What about availability and access to opioids for palliative cancer care?
Select an answer**

- Available in more than 50% of cases
- Available in less than 50% of cases
- Almost unavailable: in less than 5% of cases

68. What about availability and access to oral morphine (capsules, tablets, syrups) for palliative cancer care?

- Available in more than 50% of cases
- Available in less than 50% of cases
- Almost unavailable: in less than 5% of cases

69. In the last two years has the ministry of health organized any awareness-raising activities on breast cancer? (Multiple choice)

- None
- Cancer fundraising events
- Conferences
- Broadcasting of radio spots on television
- Awareness campaigns in primary care centres
- Mass screening campaigns

70. Does your country have any associations or NGOs working in the field of breast cancer? if yes, list them (give their websites if available)

71. Does the government provide funding to any cancer associations?

- Yes
- No

72. If yes, give the amount of funding per NGO/association for one year as an example (amount in local currency)





The WHO Regional Office for Africa

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Africa is one of the six regional offices throughout the world, each with its own programme geared to the particular health conditions of the Member States it serves.

Member States

Algeria

Angola

Benin

Botswana

Burkina Faso

Burundi

Cabo Verde

Cameroon

Central African Republic

Chad

Comoros

Congo

Côte d'Ivoire

Democratic Republic of the Congo

Equatorial Guinea

Eritrea

Eswatini

Ethiopia

Gabon

Gambia

Ghana

Guinea

Guinea-Bissau

Kenya

Lesotho

Liberia

Madagascar

Malawi

Mali

Mauritania

Mauritius

Mozambique

Namibia

Niger

Nigeria

Rwanda

Sao Tome and Principe

Senegal

Seychelles

Sierra Leone

South Africa

South Sudan

Togo

Uganda

United Republic of Tanzania

Zambia

Zimbabwe

World Health Organization

Regional Office for Africa

Cité du Djoué

PO Box 6, Brazzaville

Congo

Telephone: +(47 241) 39402

Fax: +(47 241) 39503

Email: afrgocom@who.int

Website: <https://www.afro.who.int/>