

# EPIDEMIOLOGY OF BREAST CANCER IN AFRICA

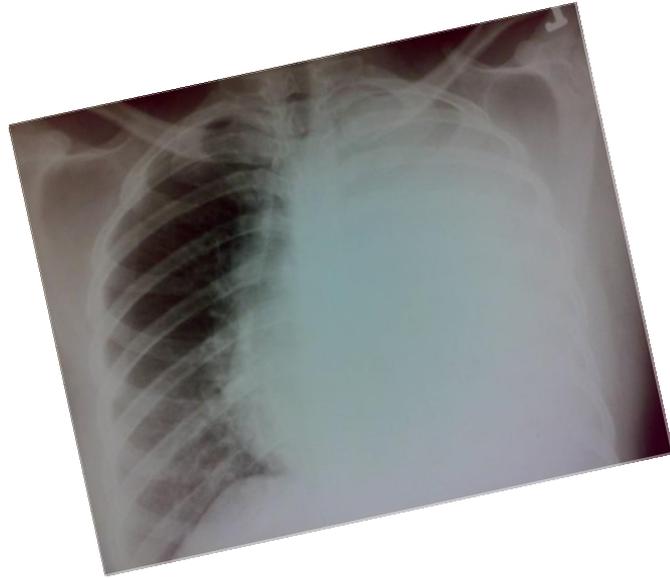
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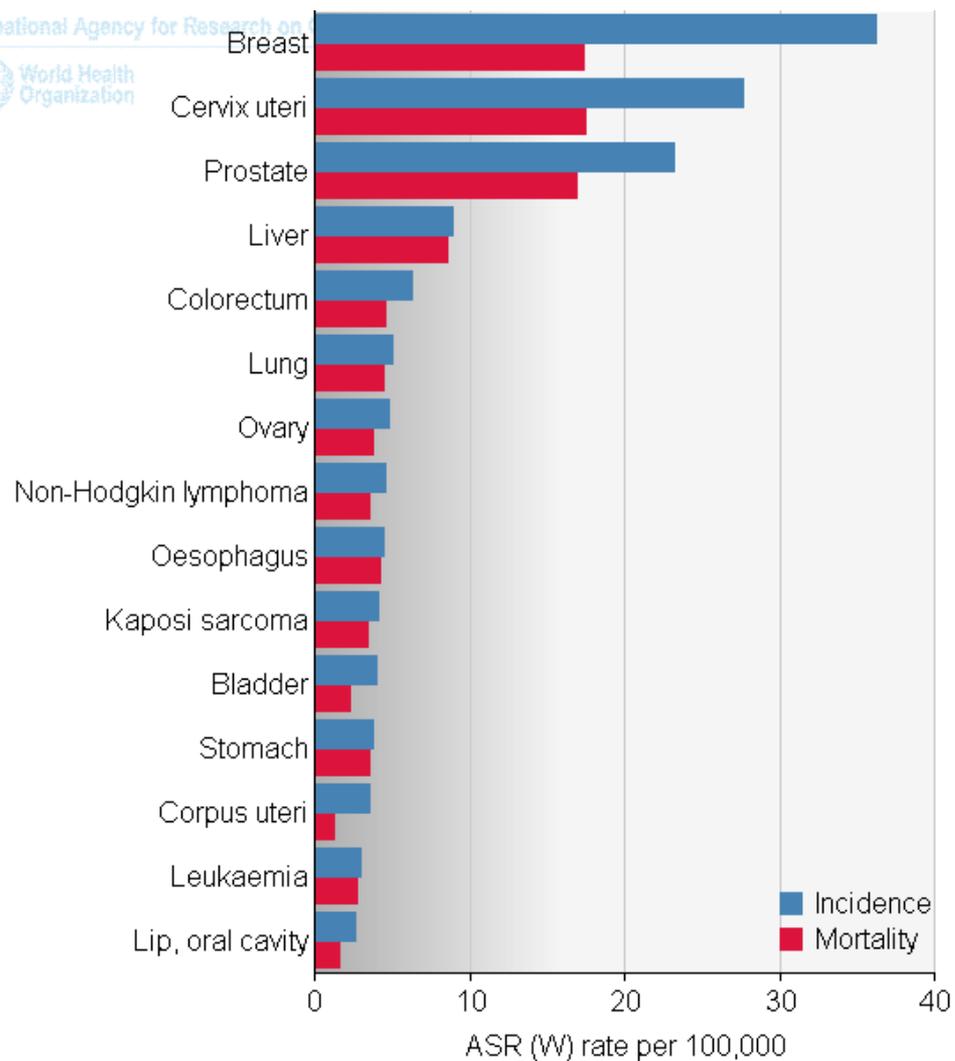
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I have no conflict of interest

# Breast Cancer in Africa: Epidemiology

- Incidence: Moderate but Increasing
- Young age of patients
- Advanced disease / Long duration of symptoms
- Tumors have adverse biological features
  - Triple negative (ER/ PR/ HER2) tumors
  - Poor grade of cancers
  - Node positive cancers
  - Inflammatory Breast Cancer
- Poor prognosis, (High mortality/ Low survival)
  - Social-cultural issues ?
  - Advanced disease ?
  - Biology of tumor ?
  - Treatment ?





Source: Globocan 2012

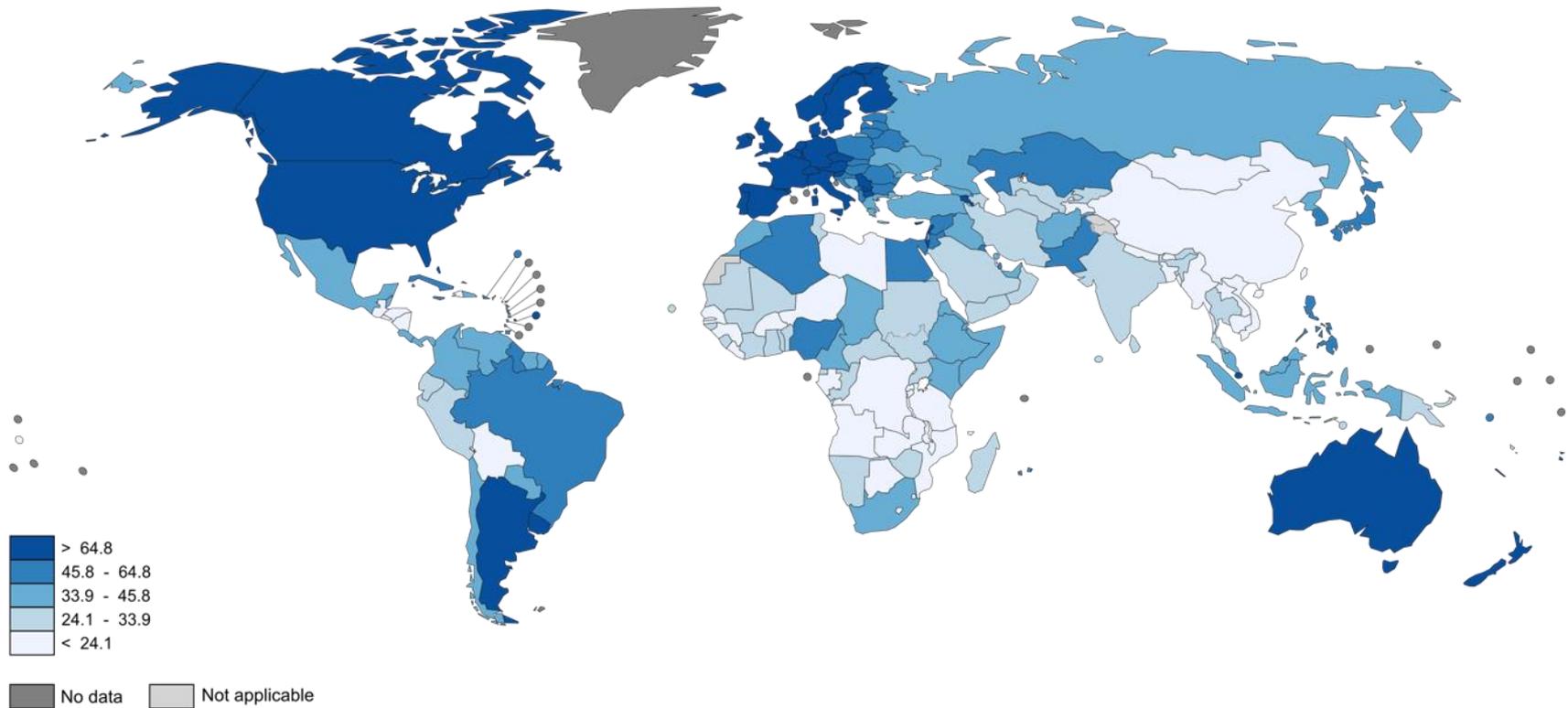
# Breast Cancer burden in Africa

In Africa, breast cancer is responsible for **28% of all cancers** and **20% all cancer deaths** in women. (16% & 11% both sexes)

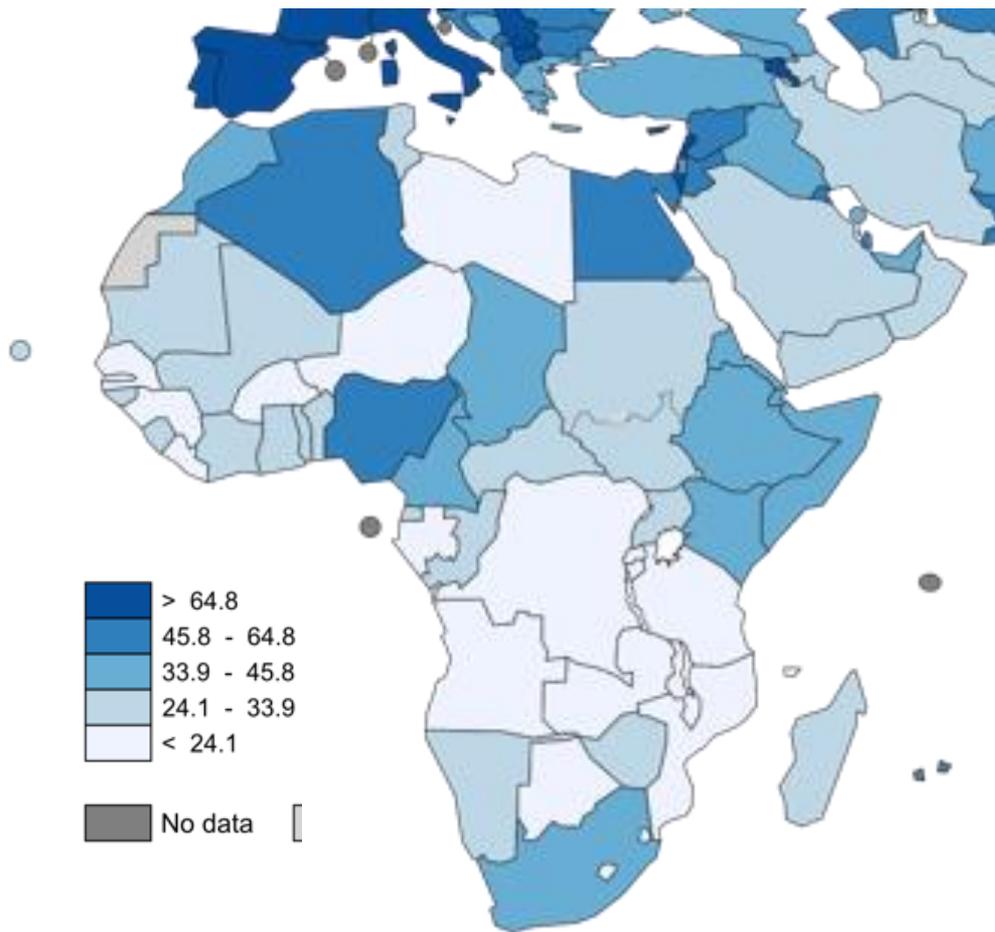
Incidence rates are still generally low in Africa, estimated below **35 per 100,000** women in most countries (compared to over 90–120 per 100,000 in Europe or North America).

Precise incidence figures in Africa are lacking given the absence of cancer registration in most countries.

Estimated age-standardized breast cancer incidence rates per 100,000. Source: Globocan 2012



Estimated age-standardized breast cancer incidence rates per 100,000. Source: Globocan 2012



Region	North	West	East	Mid	South
<b>Incidence (ASR) /100,000</b>	34.4	38.6	30.4	26.8	38.9
<b>Mortality (ASR) /100,000</b>	17.4	20.0	15.6	14.9	15.5

## Variability of Breast Cancer Incidence from some National population-based data.

<b>Country</b>	Kenya (Nairobi) <sup>12</sup>	Zimbabwe <sup>13</sup>	Uganda <sup>14</sup>	Malawi <sup>15</sup>
<b>Incidence rates (ASR) /100,000</b>	52	33	34	4

### Reasons for diversity

- Methodology?
- lack of access to health services?
- lack of pathologic diagnosis?
- true differences in risk factors?

# Breast Cancer burden in Africa

Recent Globocan data estimates (2012)

	<u>Diagnosed</u>	<u>Deaths</u>
<b>Africa</b>	<b>134,000</b>	<b>63,000</b>
<b>Sub-Saharan</b>	<b>94,000</b>	<b>48,000</b>

Expected to double in next 30 years

# Demographic Trends

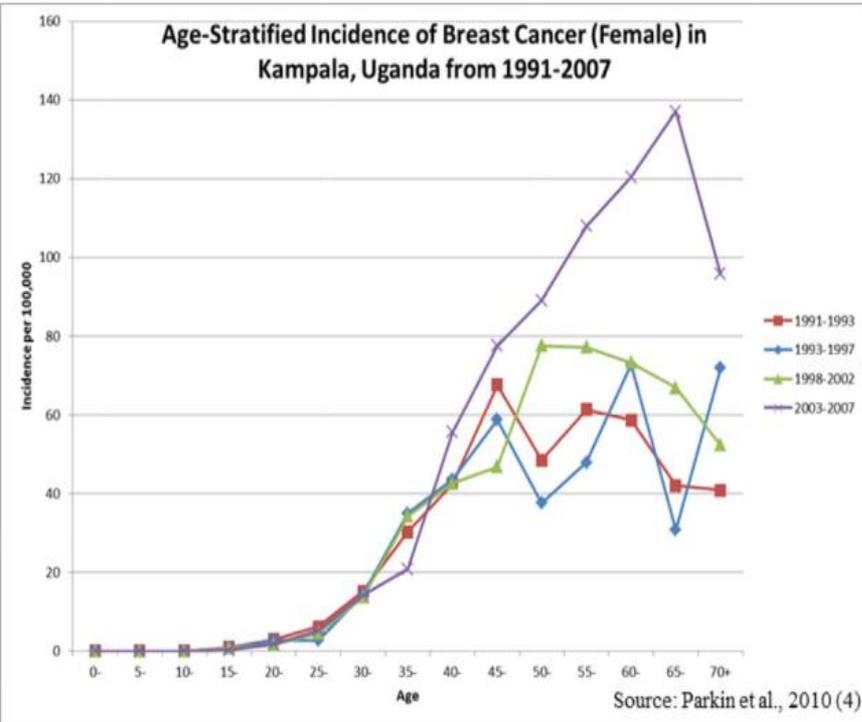
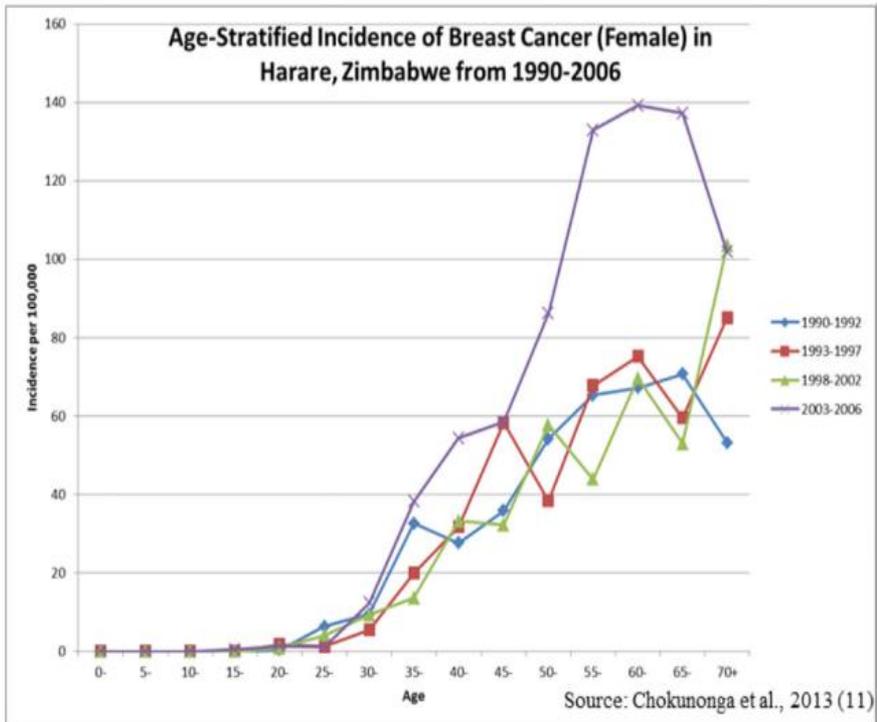
Recent incidence data from registries in **Kampala**, **Harare**, the **Gambia** and Mali-**Bamako** provide substantial support for the notion of an increasing breast cancer incidence in sub-Saharan Africa.

The Gambia and Mali reported the greatest rate of increase for women under age 55 years

## Annual increases in Breast Cancer Incidence from selected Cancer Registries

Registry	Annual increase in Incidence / 100,000	
Zimbabwe (Black population)	4.9%	Increase in over 50 year olds
Uganda	3.7%	
Mozambique	6.5%	Greatest in postmenopausal women
S Africa (Rural area)	4.3%	

Source: Kantelhardt EJ et al. A Review on Breast Cancer Care in Africa



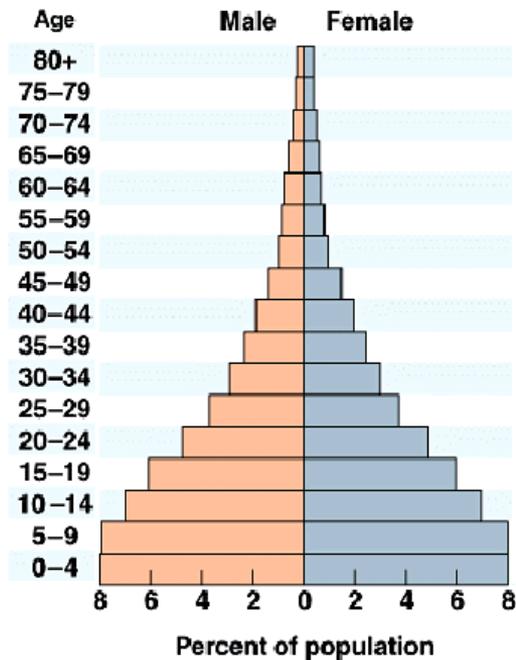
Comparison of breast cancer incidence in Zimbabwe and Uganda from 1990–2007.

Source: Brinton LA et al <sup>1</sup>

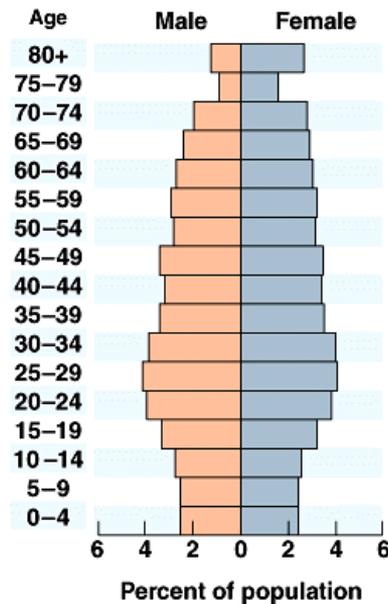
# Young age of patients

- The average age of diagnosis of breast cancers among African women tends to be women 50 years or younger - a considerably younger age than seen in Caucasian populations.
- Likely due in part to the fact that fewer African women live past 65 years of age compared to women in developed countries

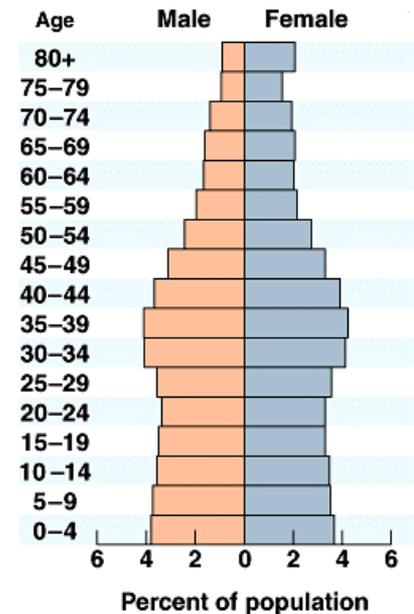
Expansive



Constrictive



Stationary



- Age structure may not entirely explain the younger breast cancer ages in Africa.
- African-American women also tend to develop breast cancers at younger ages than Caucasian women in the U.S.
- There may be additional factors involved, including
  - **Genetic ? Environmental ? Interplay** of the two?
- African women develop unique breast tumor subtypes which could also be an important contributory factor to the unusual age distribution noted.

# Tumor Characteristics

In majority of studies

- Tumors tend to be large, **Size >2** cm.
- A high frequency of **poorly differentiated tumors**, although there has been considerable variation across studies, with rates ranging from 16–83%.
- **>70% of patients had node positive (Stage III tumors)**
  - lack of organized screening/detection programs ?
  - potentially more aggressive tumors ?
  - Or BOTH !

# Tumor Characteristics (Hormone receptors)

Many of the tumors have been reported as hormone receptor negative.

- Substantial variation across studies, with rates ranging from **36–79% (ER negativity)** and **30–87% (PR negativity)**.
- Fewer studies have reported on **HER2 status**, but tumors have largely been classified as not expressing this marker.
- Result: high rates of **triple negative cancers** reported, with a number of studies showing that the majority of African women are diagnosed with such tumors.

# Tumor Characteristics

To what extent does the absence of markers reflect issues related to tissue collection and processing, i.e. **inaccurate IHC results?**

- poor quality specimens from large and necrotic tumors

- prolonged delay before fixation

- questionable quality of fixation materials: **Buffered 10% formalin**,

- prolonged stay in fixative,

- poor laboratory techniques

- limited quality assurance/quality control practices

# Hormone negative tumours

- The rate of ER negativity was found to be only **27%** in a Nigerian study that used core needle biopsies, which are less prone to delays in fixation that can influence IHC results. <sup>6</sup>
- Two recent investigations <sup>7,8</sup>(each involving over 1,200 cases) using standardized methods for collection, processing and classification of tumors have reported rates of triple negative cancers closer to **20%**.

# Poor tumour grade, Inflammatory Breast cancer

- Majority of publications have poorly differentiated Grade 3 tumors **40 – 83%**
- North Africa: High rate of Inflammatory Breast Cancer.<sup>10</sup>  
Studies from Tunisia
  - 1969-1974 **> 50%**
  - Recent studies: **< 10%**

# Poor survival

Recent study (Sankaranarayanan et al): survival from colorectal, breast and cervix cancer is markedly lower in Africa compared to other regions of the world, even the other low resource countries.

In The Gambia, the 5-year survival did not exceed **22%** for these malignancies

In Ghana, Breast overall 5-year survival was **25%**. A recent study from Ghana: Stage 0 & 1 (**>90%**); Stage 4 (**<20%**)

- Poor survival is a result of advanced disease

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# Failure to Provide of Access to Care

Limited facilities for detection and treatment of cancer in most African countries

Patients have to travel long distances for pathology/ diagnostic services

Cost of care: Prohibitive (biopsy, pathology, surgery, chemotherapy, radiotherapy)



# Education to improve.....

A sense of hopelessness and fatalism

Fear of mastectomy

- Associated with death
- Stigma (including loss of spouses)

A lack of knowledge surrounding cancer diagnosis and treatment

Non-acceptance of hospital treatment and/or

Preferences for alternative care

# Failure of women to Access Care

- Cancer awareness is low in most African countries. A UICC survey: 25% of Africans surveyed believed that cancer had no cure and only 36% believed cancer was a major health issue.<sup>9</sup>
- Many women delay seeking medical attention until their tumors are quite advanced (In Ghana and Nigeria, a mean delay of about **10 months** between the onset of symptoms and presentation).
- Women initially seek care from traditional healers. (Cameroon study: 55% went to traditional healers before presenting for medical consultation)
- Cancer is often viewed as a disease of the spirit

# Recommendations

More attention is needed on primary and secondary preventive efforts.

Educate women about the importance of early detection and access to care.

Cancer registries

**Improve access of care**

African proverb

*“If someone is washing your back,  
you should wash your front”*

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