

Risk of Financial Catastrophe for Breast Cancer Patients in Nigeria: A Retrospective Analysis

Norah N. Zaza, MD³; Matt Caputo, BS¹; Frankie I. Uwechue, MD²; Zainab Adegbite, MPH⁴; Chinenye Iwuji, BM, PhD⁴; Chukwumere Nwogu, MD, PhD⁵; Bindiya Sadarangani⁴, BS; Kristina Diaz, MSN, RN³; Juliet S. Lumati, MD, MPH^{1,3}

¹Robert J. Havey, MD Institute for Global Health, Northwestern University, ²Department of Surgery, University at Buffalo, Jacobs School of Medicine, ³Department of Surgery, Northwestern University Feinberg School of Medicine, ⁴Department of Oncology, Lakeshore Cancer Center, Lagos, Nigeria, ⁵Department of Surgery, Roswell Park Comprehensive Cancer Center

Background

- Breast cancer is the most common cause of cancer-related death in Nigeria
- The incidence of breast cancer has increased by over 80% in last four decades – it is the most common cancer in Nigeria
- <5% of patients in Nigeria have government sponsored insurance
- Financial catastrophe is defined as out of pocket (OOP) costs >10% of household expenditure, 20% of income or 40% of non-food spending

Research Objectives

- Investigate the financial burden of Breast Cancer care at Lakeshore Cancer Center (LCC) in Nigeria and identify risk factors for financial catastrophe

Methods

- LCC cancer registry was queried for patients diagnosed with breast cancers between 2013-2023
- Treatment costs were abstracted from billing data and adjusted to 2023 USD
- Total OOP cost and risk for financial catastrophe were measured with descriptive statistics and stratified by clinical characteristics
- Risk for financial catastrophe was defined as OOP cost exceeding 20% of Nigeria's 2023 per capita GDP (\$2,335)



Results: Patient Demographics

Table 1. Participant Characteristics (N = 352)						
Age*	Female	Married	Stage 1	Stage 2	Stage 3	Stage 4
47 (40, 58)	349 (99%)	261 (74%)	6 (2%)	87 (26%)	91 (28%)	135 (41%)
Chemo	Procedure	Hormone Therapy	Immunotherapy	Multiple Modalities		
163 (46%)	138 (39%)	73 (21%)	26 (7%)	130 (37%)		

*Median (IQR)

OOP Cost by Receptor Type and Stage

Receptor Group	Mean
HER2+, HR+	\$13,278
HER2+, HR-	\$8,541
HER2-, HR+	\$8,298
Triple Negative	\$7,332
Unknown	\$6,018
Cancer Stage	
0,1,2	\$6,859
3	\$8,783
4	\$7,916

Table 2: Total treatment cost by receptor status and cancer stage

Total Treatment Cost

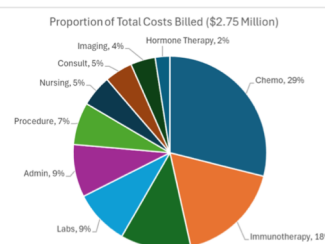


Figure 1: Of the ~\$2.75 million total this cohort paid to Lakeshore, this graph indicates the proportions of that total that came from each cost type

OOP Cost by Treatment Modality

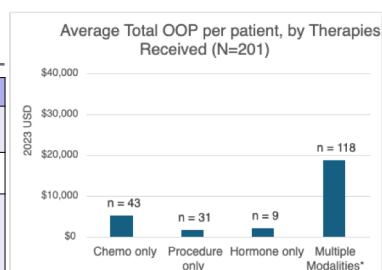


Figure 2: Average total OOP per patient, grouped by therapies received.

*includes chemo, immune, hormone, surgery, radiotherapy

Average OOP per therapy

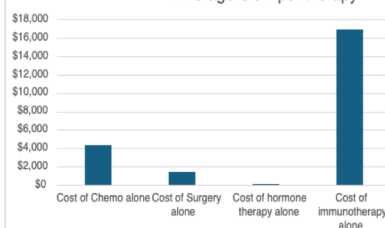


Figure 3: Average total OOP per therapy

Risk for Financial Catastrophe

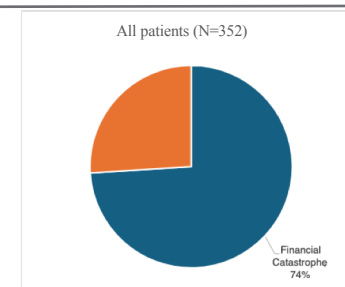


Figure 3: Percent of patients at risk for financial catastrophe (spent >\$467 on treatment) – 30% of patients completed treatment

Conclusions

- Less than one-third of Breast Cancer patients completed treatment, and the majority were at risk for financial catastrophe
- Patients with HER2+/HR+ disease, patients who underwent multiple treatment modalities and patients who received immunotherapy had higher treatment costs
- Cost of treatment may contribute to the low rate of treatment
- Targeted efforts are essential to ensure equitable access to quality care while minimizing risk of financial catastrophe
- Next steps will be the assignment of financial navigators to cancer patients and evaluating treatment completion rates and effect on financial catastrophe

Financial Disclosures

- There are no financial disclosures.