

THE CURRENT STATUS OF CANCER CARE IN NIGERIA: CHALLENGES AND SOLUTIONS

By

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AT

“THE ACCELERATING THE FUTURE: DESIGNING A ROBUST AND AFFORDABLE RADIATION THERAPY SYSTEM FOR CHALLENGING ENVIRONMENTS” IN GABORONE, BOTSWANA. 20TH TO 22ND MARCH, 2019

BACKGROUND

FIG. 1: THE PLACE OF NIGERIA IN AFRICA MAP



- Nigeria has an estimated population of 186 million people (NPC, 2017)
- This population was estimated to have a growth rate of 3.2% annually (NDHS, 2013)
- Nigeria contributed 15% of the estimated 681, 000 new cases of cancer that occurred in African in 2008 (Sylla et al, 2011)
- In Nigeria about 100,000 new cases of cancer occur every year with high case fatality (Ferlay et al, 2010)
- As in most developing countries late presentation with unfavourable prognosis is common in Nigeria (Solanke et al, 1996)
- Nigeria spends an average of 500 Billion Naira (1.4 Billion USD) annually on medical export tourism, which means that majority of Nigerians can afford Radiotherapy Services if available

GLOBAL PICTURE OF CANCER INCIDENCE AND RADIOTHERAPY MACHINES DISTRIBUTION

- Globally, cancer has been designated the 2nd most important cause of death among non-communicable diseases and its incidence is expected to rise in the coming decades (Hunter et al, 2013).
- The greatest increase in incidence is found in low- and middle-income countries (LMICs) where cancer is a major cause of morbidity and mortality (Farmer P et al, 2010 and GLOBOCAN 2012).
- The 66th United Nations General Assembly has listed cancer as a part of “a rising epidemic” of the non-communicable diseases and has noted the lack of radiation therapy services in developing countries (66th UN Assembly, Accessed July 26th 2018).
- It estimated that annual global cancer incidence will rise from 15 million cases in 2015 to as many as 25 million cases in 2035, 65 to 70% of which will occur in LMICs where there is a severe short fall in radiation treatment capacity (WHO report on cancer, Accessed July 28, 2018).

- Radiation therapy is a critical and cost-effective component of cancer care in the definitive, adjuvant, and palliative settings (Barton et al, 1995)
- A study by Aruah et al, in 2017 found that more than 60% of cancer patients require radiotherapy in the course of their care.
- According to the latest updates from the Directory of Radiotherapy Centre (DIRAC) database, there are currently 160 radiotherapy centres in Africa (Samiei et al, 2013)
- A total of 88 cobalt-60 machines, half of which are over 20 years old, and 189 linear accelerators are operating in these 160 centres.

- Over 60% of available radiotherapy machines are in South and North Africa, while 29 of 54 countries are still lacking any radiotherapy services.
- Apart from a shortage of radiation therapy capacity, other major obstacles in the delivery of radiation therapy services in LMICs appear to be multifactorial (Samiei et al, 2013)
- Radiation therapy, a key component of cancer management, is required in more than half of new cancer patients, particularly in LMICs (Niloy et al, 2014).
- Niloy et al, 2014, calculated the cumulative radiation therapy infrastructure and staff requirements for LMICs that presently do not have any radiation therapy services using 2012 GLOBOCAN report.
- A total of 41 countries were identified in this category and calculations were made based on their GLOBOCAN status in 2012 and expected status in 2020.

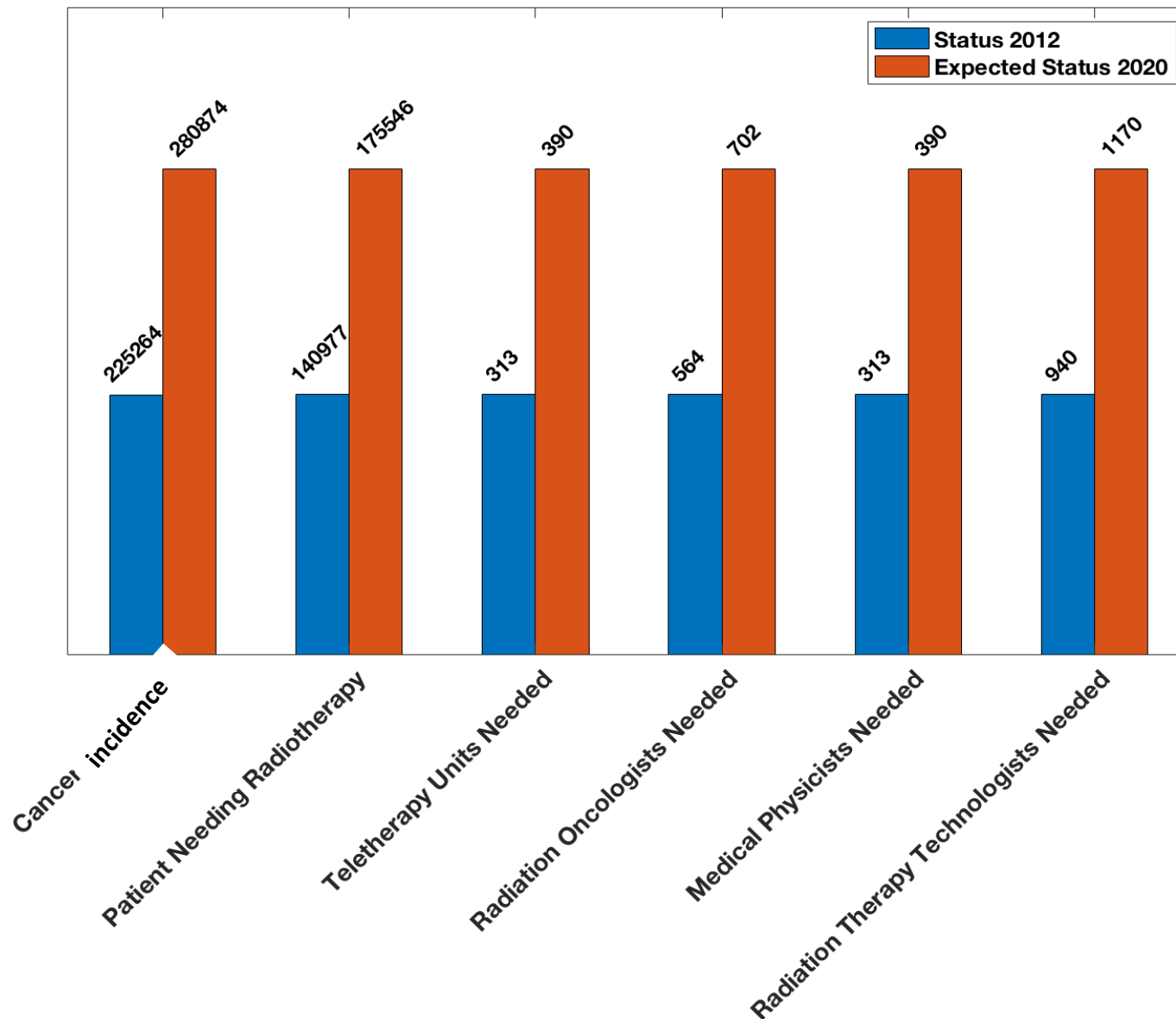


Figure 1: GLOBOCAN radiotherapy status in 2012 and expected status in 2020 in LMICs
 (Source: Slotman 2005 and IAEA 2010, Accessed July 25th, 2018)

CHALLENGES OF CANCER CARE IN NIGERIA

- **Oncological Facilities**
- **Funding of Cancer Treatment by Government and Donor Agencies**
- **Availability of Man-power**
- **Affordability and Access to Cancer Drugs**
- **Legislature on Cancer Treatment**

ONCOLOGICAL FACILITIES

- Nigeria has limited oncology facilities and radiotherapy treatment centres when compared to her population size.
- There are only 7 radiation oncology centres owned by government and 1 private centre.
- 90% of these centres are not functional and operate without treatment planning system (TPS)
- 2 of the government owned facilities still use cobalt- 60 machines with challenges of reduced source activity due to exceeded half life.
- Only 1 centre, the National Hospital Abuja, can boast of a treatment planning system and a CT simulator.
- There is only 1 functional centre with HDR for brachytherapy, especially for gynaecological malignancies.
- This centre also suffers challenges of source replacement and limited manpower.
- Almost 90% of Nigerian radiation oncology centres lack cancer registration system using mosaic (R&V system)

- In Nigeria, no priority is given to cancer care services by healthcare planners at all levels, hence cancer care is not seen as an emergency.
- Similarly, the rural population in the country lacks a sense of cancer awareness or recognition that treatment is available due to limited access to health care in Nigeria.
- Where there is knowledge of treatment, the long distance from such centers and people in poverty become major obstacles as our transport system is still at rudimentary level.
- Travel expenses, accommodations and other factors prevent or delay many of those who are aware of their diseases from seeking medical attention as most patients pay out of pocket not having health insurance.
- This contributes to relatively advanced stages of disease at presentation with attendant morbidity and mortality.

Table showing equipment distribution in functioning radiotherapy centers in Nigeria.

Center	Linear Accelerator	Cobalt 60	Superficial x-rays	Conventional simulator	CT Simulator	3D TPS	Brachytherapy	Mould room
ABUTH	-	1	1 (non-functioning)	-	-	-	LDR = 1	Yes
UCH	-	-	-	1 (non functioning)	-	-	HDR = 1 (non functioning)	-
LUTH	1 (Faulty)	-	-	-	1	Yes	-	Yes
NHA	1	-	-	-	-	-	LDR = 1	Yes
UDUTH	1	-	-	-	1	Yes	-	Yes
UNTH	1 (Faulty)	-	-	-	1	Yes	-	Yes
UBTH	1 (Faulty)	-	-	-	1	Yes	-	Yes
FTH Gombe	-	-	-	-	-	-	HDR = 1	-
EKO Hospital	-	1	1	-	-	-	-	Yes
Total	5	2	2	1	4	4	LDR = 2 HDR = 2	7

Table showing the number of megavoltage machines and population per megavoltage in selected countries.

Country	Department	Cobalt -60	Linear Accelerator	Total Megavoltage machine	Megavoltage per million	Megavoltage per department	Population million per megavoltage
Australia	42	4	86	90	4.80	2.14	0.21
China	453	381	286	667	0.53	1.47	1.89
India	188	256	35	291	0.30	1.55	3.33
Japan	611	213	603	816	6.46	1.34	0.15
Pakistan	19	21	13	34	0.26	1.79	3.85
Sri Lanka	4	7	0	7	0.37	1.75	2.70
Indonesia	16	15	9	24	0.12	1.50	8.33
Bangladesh	11	10	1	11	0.09	1.0	11.1
Nigeria	9	2	5	7	0.033	0.8	30
Egypt	35	25	28	53	0.80	1.51	1.26
South Africa	18	16	24	40	0.78	2.22	1.13

(Source: CEA FON 2015 CONFERENCE)

FUNDING OF CANCER TREATMENT BY GOVERNMENT AND DONOR AGENCIES

- Nigeria's budget for health has been on a downward trend since 2012. Nigeria budgeted 340 Billion Naira (9.7 Billion USD) which is 3.9% of the 8.6 Trillion national budget planned for the year 2018
- This allocation is less than the 4.16% and 4.23% made to the health sector by the administration in 2017 and 2016 budgets
- Most of the cancer patients pay out of pocket for their treatment not minding the poor GDP.
- There is limited health insurance coverage for those not working in the government sector.
- Also, our National Health Insurance Scheme (NHIS) has limited coverage for oncology drugs for the treatment of cancer.
- There is a limited number of donor agencies involved in cancer screening, diagnosis and treatment in Nigeria.
- There is limited access to loans for private-sector driven health systems

AVAILABILITY OF MAN-POWER

- There are limited number of specialist in cancer management in Nigeria taking cognizance of cancer incidence, prevalence and population size.
- Most University Teaching Hospitals lack a basic pathology laboratory and rarely do molecular studies on cancer.
- There are less than 70 consultants radiation and clinical oncologists in Nigeria.
- This figure is equally reflected in the number of medical physicists, therapy radiographers and oncology nurses involved in cancer treatment in Nigeria.
- There are prolonged waiting times and delays due the limited number of health care workers and the large patient load.
- Critically lacking in Nigeria are linac engineers for proper maintenance of the machines and repair in order to reduce machine down time.
- Nigeria lacks health care specialists at secondary and primary levels with basic knowledge of cancer. Hence there are always delays in the diagnosis and referral stages.
- Patient to doctor ratio in Nigeria remains high with grievous implication regarding patient care and job satisfaction by the doctor

AFFORDABILITY AND ACCESS TO CANCER DRUGS

- More than 70% of cancer patient in Nigeria present with locally advanced disease, hence may benefit from adjuvant, neo-adjuvant and palliative chemotherapy.
- There is no availability of an up-to-date National Drug Formulary in Nigeria, hence no practical guide on drug administration and use.
- Most of the hospitals do not have enough drugs in their pharmacy stores, thereby worsening access to oncology drugs by patients.
- There are challenges of affordability, quality assurance and access to oncology drug as most pharmaceutical companies have their plants outside Nigeria.
- Nigeria has no lay-down process for accessing narcotics and analgesics for pain management in cancer patients.
- Access to immunotherapy and targeted agents are quite limited in Nigeria.

LEGISLATURE ON CANCER TREATMENT

- Budgetary allocation to health remained short of 15% of National budget as recommended by World Health.
- Nigeria is yet to implement universal national health insurance coverage.
- There are still challenges of responsibility between the state governments and the federal government as regards level of intervention in the health sector.
- There is no active government participation in ensuring cancer screening, diagnosis and treatment as part of citizens rights.
- Poor implementation of patient rights regarding issues of malpractice by attending doctors
- Nigeria Medical and Dental Council still lack basic laws on health ethics and supervision which needs support of the federal legislative structure.
- Nigeria is yet to implement the National Health Act.

SOLUTIONS TO CHALLENGES OF CANCER CARE IN NIGERIA

- Establishment of a world class radiotherapy centre in National Hospital Abuja equipped with TPS, modern LINAC, CT simulator and Mosaiq for R&V

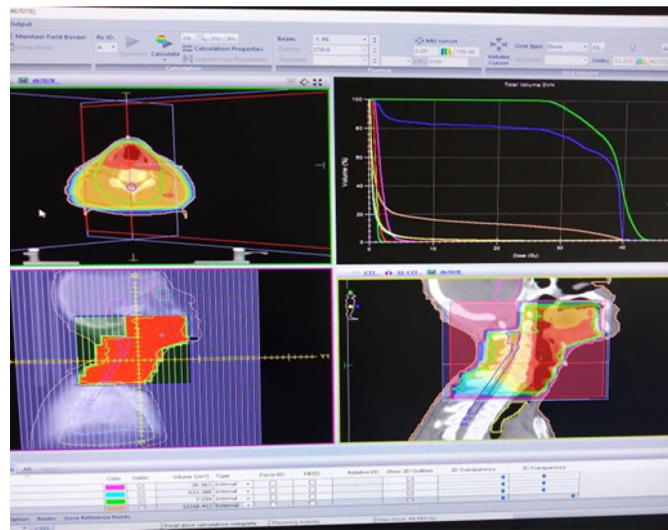
**WHERE WE ARE NOW:
TRANSITION FROM 2D TO 3D CONFORMAL
TREATMENT USING MEDICAL LINAC (NEW
RADIOTHERAPY CENTRE FOR EXCELLENCE, NHA)**



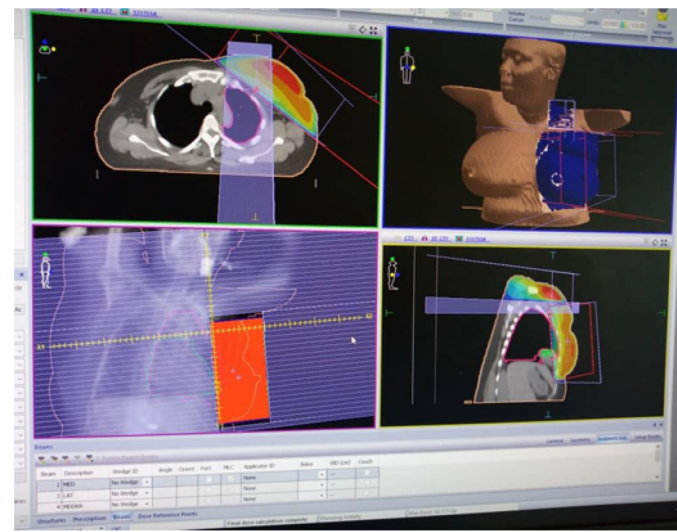
64 Slice CT Simulator



CT Control Room



Treatment Planning for Head and Neck Cancer Planning with Dose Volume Histogram



Breast Cancer Treatment Planning



LINAC Treatment Room



3D Conformal Linear accelerator (Elekta Synergy)

- Recent establishment of radiotherapy centre in Lagos University Teaching Hospital (LUTH) in collaboration with private sector (PPP) on January 2019



- Improved number of radiation and clinical oncologists which are currently up to 75 in number as against less than 40 ten years ago as well as an increased number medical physicists, therapy radiographers and oncology nurses.
- Passage of establishment of a national cancer institute into law in 2018 by the National Legislative body.
- Increased enrollment in the National Health Insurance Scheme (NHIS), thereby reducing out of pocket expenditures by cancer patients.

- Gradual and stepwise increase in budgetary allocation to health and education as reflected in 2019 national budget.
- Increase in population-based cancer studies and clinical trials hence improving data access on cancer epidemiology.
- There is ongoing training of LINAC engineers and private sector collaboration for LINAC maintenance to reduce downtime.
- Improved affordability and access to oncology drugs through direct government intervention and donor agencies.

CONCLUSION

- There is no doubt that there are large and significant deficiencies in available components in cancer care in Nigeria but Nigeria has made significant steps in bridging these gaps through direct government intervention with private sector collaboration.
- With strong political will and commitment of the health providers, Nigeria will emerge as the next hub of radiation oncology treatment and cancer research taking cognizance of huge human potentials and material resources.

THANK YOU FOR LISTENING