

# **THE CURRENT STATE OF RADIOTHERAPY PRACTICE IN NIGERIA: WHAT THE FUTURE HOLDS .**

*Dr. Chinedu Simeon Aruah* MD,MPH, FWACS  
Radiation and Clinical Oncologist/Lecturer,  
National Hospital Abuja,  
Nigeria

Presented at  
CERN, GENEVA, Switzerland  
Oct, 2017.

# BACKGROUND: NIGERIA

- Nigeria population was estimated at 186 million people ([NPC National Population Commission 2017](#))
- This figure means that Nigeria represent about 2.35% of the world population
- Nigeria contributes about 20 – 30% of the world cancer mortality ([IARC 2008](#))
- There are 8 Radiation Oncology Centers with Mega Voltage Radiotherapy machines serving this 186 million population.
- Nigeria lacks population-based cancer registry hence most of the data on cancer incidence, mortality, morbidity and prevalence studies were hospital-based cancer registry



- There are 7 government owned and 1 privately owned Radiotherapy centers with mega voltage machines in Nigeria (Nwankwo et al, 2013).
- This means that these 8 mega voltage machine is serving 186 million people in Nigeria ( 5 LINACs and 3 Cobalt machines).
- By the IAEA recommendation one LINAC megavoltage therapy machine is required for 400 patients ( Levin et al, 1999).

- Nigeria is far behind IAEA recommendation in terms of number of megavoltage machine per 400 patients, trained health personnel and other necessary requirements to enhance access to radiotherapy treatment in our environment.
- More than 50% of cancer patients will receive radiotherapy or chemotherapy in the course of their treatment (Aruah et al, 2017)
- Also, Aruah et al, 2017 found that more than 72% of cancer patients present with stage III disease which is locally advanced in our environment.

## CURRENT STATUS OF RADIOTHERAPY PRACTICE IN NIGERIA

- All Radiotherapy centers in Nigeria with LINAC or Cobalt 60 megavoltage machines lack Treat Planning System (TPS)
- This limit our ability to perform 2DCRT, 3DCRT, IMRT, VMAT, and other treatment modality that could enhance good treatment outcome with less complications.
- Considering the number of cancer patients and available 8 megavoltage machines one per each centre, this grossly inadequate and has overall effect on access to Radiotherapy, treatment delay and poor outcome.

- In my centre National Hospital Abuja ,we have one multi energy LINAC (6MV, 15MV, 4MeV, 6MeV, 8MeV, 10MeV and 18MeV) and a Conventional Simulator which has long broken down without repair due to lack of spare parts and trained local Engineers to maintain it.
- Also 2 Remote Afterloading LDR Caesium137 Brachytherapy machines which have not being functioning because of lack of maintenance and suitable conventional simulator or C-Arm to produce orthogonal films after insertion of applicators.
- We will be glad to have more LINACs, CT-SIM and HDR brachy source to increase access to radiotherapy treatment by our growing number of cancer patients.

- Currently ,we treat an average of 150 patients per week using one LINAC which often break down with no CT-Simulator and TPS.
- We lack adequately trained Radiation Oncologists, Medical Physicists, Dosimetrists and Therapy Radiographers which no doubt limit our ability to treat increasing cancer patients and to perform 2DCRT, 3DCRT and IMRT as well as VMAT treatment modalities.
- There have been several attempts for in-house training of radiotherapy staff in Nigeria but this has failed due to poor technology transfer.

- We will need training of young Medical Physicists, Radiation Oncologists, Dosimetrists and Therapy Radiographers in some good Radiation Oncology centres of the world with an aim for appropriate technology transfer. This may be achieved through educational grants and support programmes.
- Also training of young Engineers on how to repair and maintain LINAC and other equipment is very critical to ensure early intervention and prevention of frequent downtimes of LINACs and interruption of treatment process.



# CONCLUSION

- Nigeria radiotherapy treatment is still at rudimentary level but very promising because of her vast geography, huge population and abundant young talents waiting to be harnessed.
- Nigeria remains a huge market for any private investors in Radiotherapy and other willing partners who may wish to explore the huge potentials in Private-Public-Partnership (PPP).
- This will no doubt change the story of access to Radiotherapy treatment in Nigeria.

**THANKS  
FOR YOUR  
ATTENTION**