Transitioning from 2D to 3DCRT for EBRT in Ghana: The challenges, Success Stories and Way Forward

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Ghana

- Practical implementation of new technologies in LMIC
Introduction

The Radiotherapy Process
...in the beginning...

- Patient Assessment and Decision to Treat with RT
- Target Localization
- Define Treatment
- Treatment Delivery
- Verification of Patient Position and Beam Placement
- Calculate Treatment parameters
Introduction

- Present population of approximately 28 million with 3 Radiotherapy facilities to handle OVER 30,000 new cases of cancer occurring annually.

- 0.1 RT Machine per million patients

- Accra (Southern Ghana)
  - KBH: 1997 (2D/3D) with the help IAEA
  - SGMC: 2010 (3D)

- Kumasi (Northern Ghana)
  - KATH: 2004 (2D/3D) with the help of IAEA

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Introduction

2D Planning Major Technology
- Immobilization
- Simulator
- Dose Planning
- Treatment machine
- Port films (Plain X-ray)

Based on bony anatomy

3D Planning Major Technology
- Immobilization
- CT Simulator
- TPS
- Treatment machine
- Port films

Based on actual patient data
Challenges

MAIN
• No dedicated CT
• Workload and Back log
• Extra cost to Patient
• Limited TPS work station
• Lack of commitment from Gov’t/Policy makers

OUTSOURCE CT SERVICES
• Different scan protocols
• Immobilization devices
• Image transfer problems
• Limited RT staff
Success 1

SGMC

- A private Center operated by Ghanaians doing 3DCRT and IGRT
- Have onsite CT and MRI
- Image fusion for some cases
- Staff who transitioned from 2D to 3D
- All cases are 3D planned
Success 2

Outsourced Services

- A number of private CT centers identified to provide imagining
- Localized customized flat top
- Less than 1% planned 3D at Gov’t Centers
- Trained RTTs for offer 3D Sim
- SGMC offering 3D services for patients who can afford
Way Forward

- Commitment from Gov’t and Policy makers to see the need for dedicated CT machines
- Upgrading and expansion of radiotherapy centers
- Staff strength and Training
- Cost of CT as part of RT treatment
- More TPS workstations
- Bureaucracy and bottlenecks

**Phase I**
- In response to this challenge, the Government of Ghana recently acquired a $13.5 million from the OPEC Fund and the Arab Bank for Economic Development in Africa
  - replaced with 2 Linacs and a new cobalt unit

**Phase II**
- Dedicated CTs installed connected over a local network (LAN) with the RVS and treatment units
New Equipment

Varian Unique Linac 6MV

Equinox Co-60
Is 2D still relevant in providing effective, efficient and safe RT treatments in the LMICs?

THANK YOU