

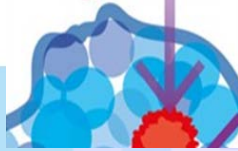


- Practical implementation of new technologies in LMIC



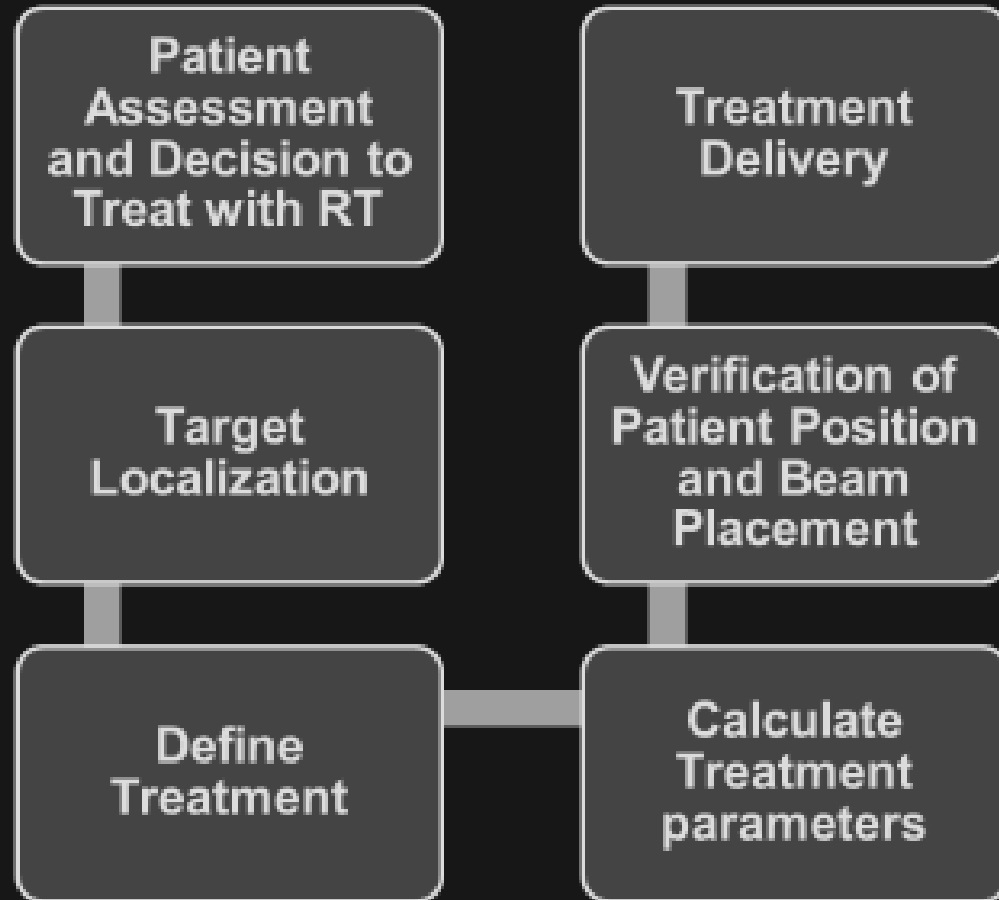
Transitioning from 2D to 3DCRT for EBRT in Ghana: The challenges, Success Stories and Way Forward

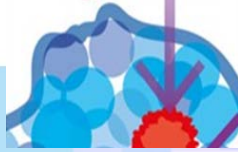
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Ghana



Introduction

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





Introduction

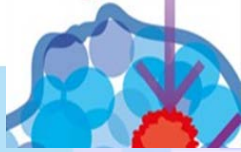


- Present population of approximately 28 million with 3 Radiotherapy facilities to handle OVER 30,000 new cases of cancer occurring annually.

- 0.1 RT Machine per million patients

RT Facility	Equipment	Number
Korle-Bu	Equinox Cobalt 60	1
	LINAC	1 * under Commissioning
	HDR	1
	Simulator	1
	Prowess TPS	1
	Digitizer	1
	Eclipse TPS	1 * under Commissioning
Komfo Anokye	Cirus Cobalt 60	1
	Simulator	1
	Prowess TPS	1
	Digitizer	1
	LDR	2
SGMC	Elekta LINAC	1
	CT Simulator	1
	Oncentra TPS	3
	MosaiQ R&Vs	1
	iView Imaging	1

- 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



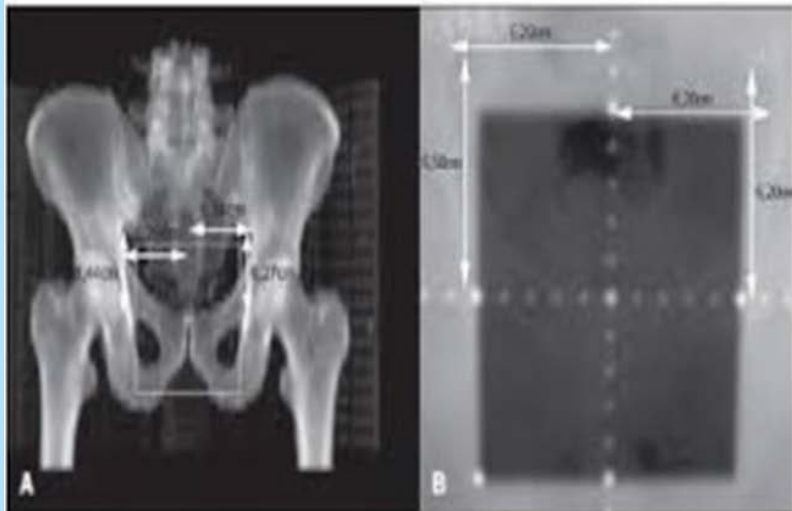
Introduction

2 D Planning Major Technology

- Immobilization
- Simulator
- Dose Planning
- Treatment machine
- Port films (Plain X-ray)

Based on bony anatomy

2 Dimensional

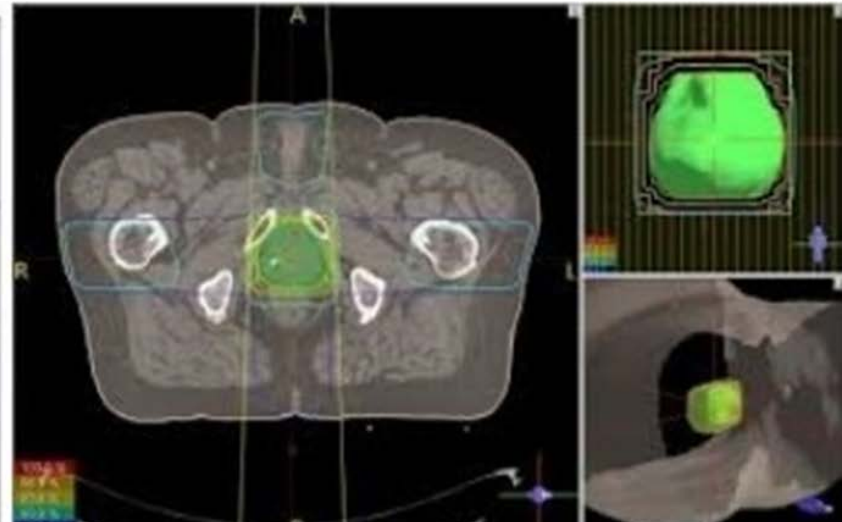


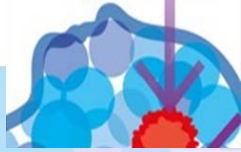
3 D Planning Major Technology

- Immobilization
- CT Simulator
- TPS
- Treatment machine
- Port films

Based on actual patient data

3 Dimensional





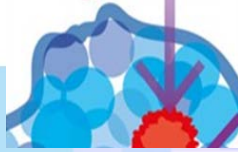
Challenges

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

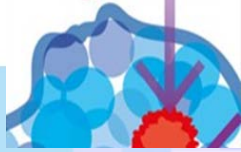


Success 2

Outsourced Services

- A number of private CT centers identified to provide imaging
- 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



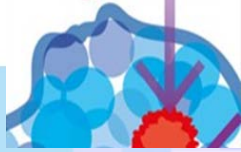
New Equipment



Varian Unique Linac 6MV



Equinox Co-60



Acknowledgments



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



IAEA

International Atomic Energy Agency

THANK YOU