## Measures to ensure appropriate use of new technology by the developing countries from a safe, economical and societal viewpoint

Carlos E deAlmeida Ph.D. ABMP, FAAPM
Full Professor in Medical Physics
Chairman, Radiological Sciences Laboratory
State University of Rio de Janeiro

IAEA -Scientific Forum - 2010

## Measures! to ensure appropriate use of new technology by the developing countries from a safe, economical and societal viewpoint

IAEA -Scientific Forum - 2010

LICENCING PROCEDURE BASED ON IAEA BSS **EX: RADIATION ONCOLOGY** . PUBLIC . ENVIRONMENT . WORKER ANNUAL INSPECTION STAFF TRAINING and SAFE PROFESSIONAL ACREDITATION **PATIENT** CLINICAL PROCEDURES and QA WELL ESTABLISHED **INDEPENDENT AUDITING** deAlmeida

ARE ALL OUR PATIENTS BEING TREATED ??

STANDARDIZED CLINICAL AND PHYSICAL PROCEDURES

SOCIETAL POINT OF VIEW

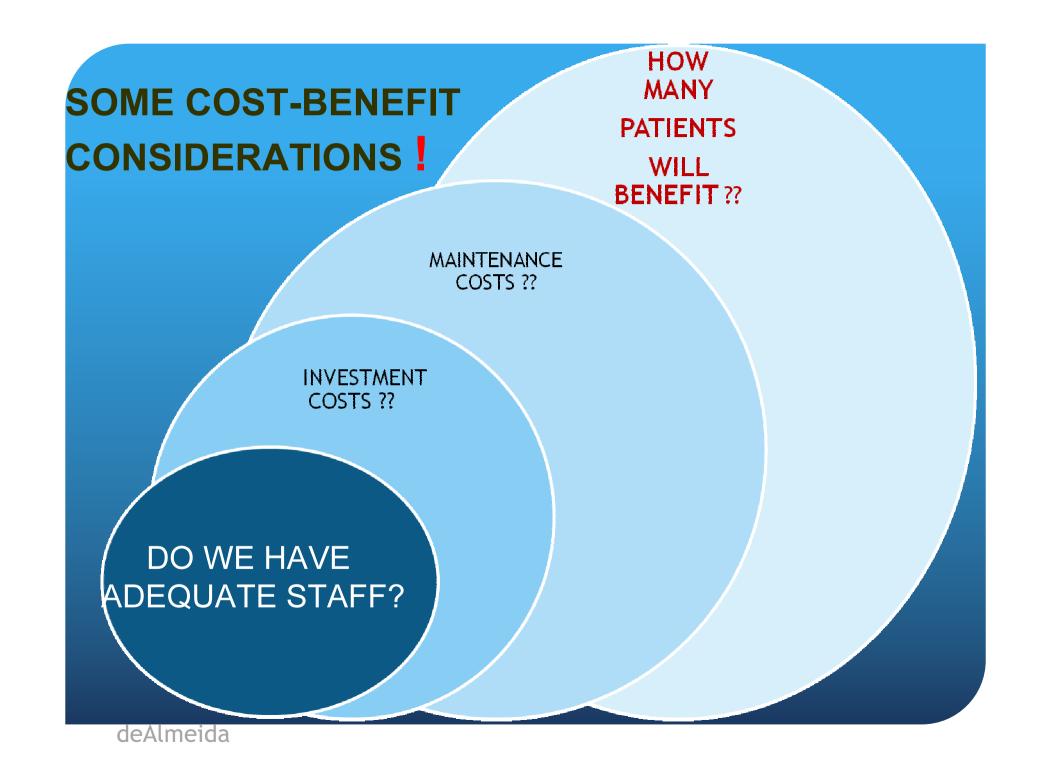
PATIENT FOLLOW-UP IS EFFICIENT ??

ARE OUR
PATIENTS
TREATED
AS THEY
SHOULD??

DO WE HAVE ADEQUATE STAFF FOR THE EXISTING TECHNOLOGY?

 The introduction of high technology requires a reflexion considering several aspects including

Cost-Benefit



Basic Equipment	Equipment Cost US\$	Room Cost US\$	Maintenance & Part US\$	
6-10 MV Dual Energy Linac with IMRT+ IGRT+ PORTAL IMAGING	3 00 000,00	400 000,00	Thyratron [1]: Klystron: [4] Ion chamber: [4] Target: [4] Wave guide: [10] Others: Maintenance Depreciation [15] Total: US\$ 33	20 000,00 120 000,00

Basic Equipment	<b>Equipment Cost US</b> \$	Room Cost US\$	Maintenance & Parts (Yearly Costs) US\$
Telecobalt	450 000,00	100.000,00	Total: 84.000,00
6 MV	600 000,00	150 000,00	Total: 119 000,00
6-10 MV Dual Energy Linac	1 000 000,00	200 000,00	Total: 154 000,00
6-10 MV Dual Energy Linac with IMRT+ IGRT+ PORTAL IMAGING	3 00 000,00	400 000,00	Total: US\$ 355 000,00

## **HIGH TECHNOLOGY MEANS:**

2. HIGHER
INITIAL AND
OPERATIONAL
COSTS

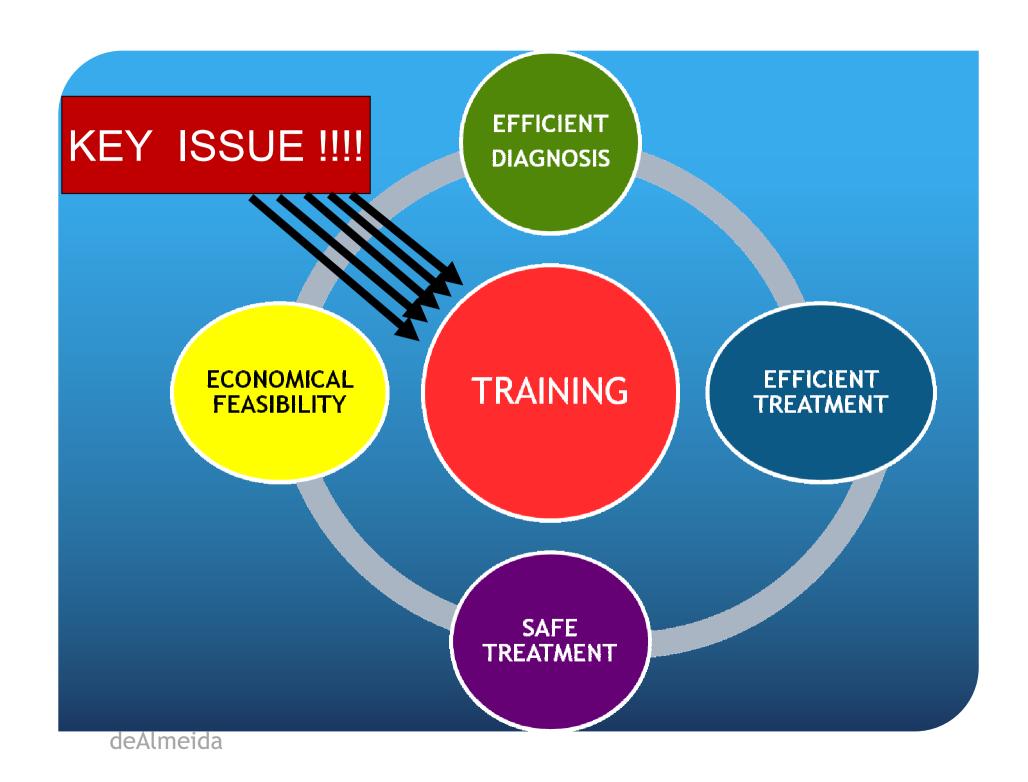


- 1. Treatment techniques.
- 2. Q A Time
- 3. Maintenance Time



1. HIGHER LEVEL OF STAFF TRAINING





## CONCLUSION.

 The Planning of High Tec Centres in Developing Countries must consider the social and economical aspects and the EVIDENCES of real benefits specific to the cancer scenario of each country. **REFLEXION!.** 

•How much technology is needed to treat our patients ??? FINAL REMARK.

 Good pilots, well organized and consistent procedures MIGHT BE
 more important than sophisticated technology!!



Thank you!