Innovative, Robust and affordable Medical Linear Accelerators for Challenging Environments Workshop

CERN, Oct 26-27/10/2017

Jamal Khader, MD
Consultant Radiation Oncologist
Head, GU Multidisciplinary Team
King Hussein Cancer Center
Amman - Jordan
Jordan

• Middle East country

• Population: 9.5 millions
  (6.5 millions Jordanians & 3 millions from Arab countries (mainly refugees from Syria, Iraq, Yemen, Palestine)

• Jordan’s economy remains sluggish due to geopolitical instability & war crises in many neighboring countries

• Recently the World Bank reduced classifications of Jordan from high middle to low middle
Cancer in Jordan
(National Cancer Registry Report 2014)

- Total number 8940 cases
  5640 Jordanians
  3300 Non Jordanians
- 5 most common cancers in Jordan
- **Males**  **Females**
  - Colorectal  Breast
  - Lung  Colorectal
  - Bladder  Thyroid
  - Prostate  Uterine
  - Lymphoma  Lymphoma
RT facilities in Jordan

- **4 facilities (all in Amman)**
  1- King Hussein Cancer Center (The only Comprehensive Cancer Center)
    - **6 Linacs** (Elekta MV 4,6,6FFF,10,10FFF and 15,Electrons 4-18 MeVs), 2 CT sim, 1 HDR Microselectron Brachy, Mould room
    - **TPS:** Pinnacle, Monaco & Oncentra (Brachy)
    - **Techniques:** 3DCRT, IMRT, TBI, TSI, SBRT (Lung,Liver), SRS, FSR, 3D Brachy, IGRT (CBCT), PET/CT connected
    - **Staff:** 13 Cons. Rad Onc, 12 residents, 12 Physicists/dosimetrists, 25 technologists
      - 10 coordinator nurses
      - 75% of cancer pts in Jordan
  2- Royal Military Hospital
    - **2 Linac** (Elekta), 1 CT sim, 1 HDR Microselectron Brachy, Mould room
    - **TPS:** XIO
    - **Techniques:** 3 DCRT, Brachy (2D)
    - **Staff:** 6 Cons. Rad Onc, 10 residents, 9 physicists/dosimetrists, 15 technologists, 6 general nurses
3- Al Basheer Hospital (Gov. hospital)
   # 2 Linac (Siemens), 1 CT sim
   # Techniques: 3DCRT
   # TPS: E clips
   # Staff: 8 Cons. Rad Onc, 8 residents, 5 physicists/dosimetrist, 10 technologists, NO dedicated nurses

4- Alafia private RT facility
   # 2 Linac (Elekta), 1 CT sim
   # TPS: Monaco
   # Techniques: 3 DCRT
   # Staff: 7 private Cons. Rad Onc, 3 physicists, 6 technologists, NO dedicated nurses
Training available in Jordan

• 4 years Board in Radiation Oncology specialty (Accredited & supervised by Jordan Medical Council)

• No dedicated programs for RT physics, or technology
  4 yrs General Physics degree
  4 yrs Radiology Technology degree

• Site specific Workshops (UICC, ESO, IAEA, Twinning programs)
• Agreements, Twinning programs (PMH, Sick hospital, Moffitt, Leeds MDACC, St Jude)
Obstacles

• Increasing number of cancer patients
• Overload, delay in treatments (4-6 weeks)
• Increases of working hours
• Chances of increase incidents (human errors)
• Machines breakdown (parts- 1-3 weeks)
• Marked Variation in care delivery between facilities
• Training of staff on new techniques
• Lack of multidisciplinary team work (except at KHCC)
• Lack of treatment guidelines (except at KHCC)
Needs

• Advanced training for staff (rad onc, hysicists/dosimetrists,technologists)
• CT sim /MRI
• Cyberknife
Thank you