Trinidad y Tobago

Presentación de País

Radiation Accident 2010

Brian Lara Cancer Centre (BLCC)

Trinidad and Tobago

May 23, 2012,
Trinidad y Tobago
History of accident...

In June 2010 during the annual QA of a Varian MV 16 Dual Energy linear accelerator at a private cancer treatment facility it was discovered that the machine’s calibration may have been out by as much as 20% for as long as 18 months prior by the Board Certified Medical Physicist retained to perform the Annual QA
It was noted that the Annual QA was not done in 2009 although a routine TDL sent for testing earlier that year indicated that the primary beam may have been generating energy in excess of 10%. This however was not followed up on by the BLCC.
The Ministry of Health contacted PAHO and requested an investigation into the findings.

In September 2010 PAHO, under the supervision of Dr. Pablo Jimenez, conducted an investigation into the reported miscalibration incident and found that over the 18 month period prior to June 2010 the machine’s output varied between 4% and 19% over the normal output.

PAHO in their report noted that during that period that 223 patients were treated and may have been overexposed.
The PAHO Report also contained a number of detailed recommendations specific to the incident, the BLCC, QA, the Patients and the Ministry of Health.

It should be noted that the Ministry of Health purchases radiation therapy treatment services from the BLCC as it does not yet provide linear accelerator technology in the public health sector, only Cobalt.
In May 2011 a joint PAHO/IAEA mission visited Trinidad to follow up on the recommendations made in their November 2010 Report as well as conduct inspections of the 3 cancer centres in Trinidad.

It should be noted that since then the MOH has been trying to have GoRTT become a member state of the IAEA. Actually, this attempt began as early as 2007 through the National Oncology Program (NOP).
In July 2011 GoRTT still not a member of the IAEA, contacted the IAEA to request assistance with respect to the radiation overexposure accident.

The IAEA immediately positively responded and indicated that despite the fact that GoRTT was not a member state of the IAEA that we were eligible on humanitarian grounds for a Medical Assistance Mission to review and assess a sample population of the patients affected by the accident.

After considerable planning this visit was arranged for a week in January 2012.
In January 2012 an IAEA RANET Medical Assistance Mission came to Trinidad for one week

The mission team comprised two radiation expert physicians and three physicists

The objectives of the mission were:
Objective and Scope of Mission

The overall objective of the RANET Assistance Mission was to assist the Ministry of Health in Trinidad and Tobago by providing medical advice on the possibly needed medical follow up of the patients subjected to overexposure at the Brian Lara Cancer Treatment Centre in the time interval of approximately 18 months up to June 2010.
Objective and Scope of Mission

1. Undertake a medical examination and assessment for a patient group of the overexposed patients – the patient group to be examined will consist of approximately 10% of the total number of 223 patients who may have been overexposed;

2. Provide advice on the medical treatment to be administrated to the patients who are to receive medical examination and assessment;
3. Evaluate the extent to which past recommendations made to the Government of Trinidad and Tobago by previous PAHO/IAEA missions have been implemented; and

4. Gather, record and evaluate information on the event and compile appropriate records for a possible future formal accident report.
The IAEA mission saw and reviewed the medical records of 30 of the 223 patients during that week and collected the tx dose histograms on all patients seen.

By the time of the visit 90 of the 223 patients had died so the IAEA saw well in excess of the 10% initially targeted.

The IAEA has since submitted its Final Mission Report with the clinical findings and recommendations for the 30 patients seen.
Actions taken to date...

- All patients have been contacted and have been given copies of their medical evaluations
- All medical recommendations are being implemented in conjunction with the BLCC
- The Minister of Health has announced that he intends to launch a full investigation into the matter to determine why the accident happened and who is responsible
In the meantime...

- GoRTT continues to pursue IAEA membership through the Ministry of Foreign Affairs

- Radiation Policy developed and Radiation Protection legislation has been approved by Cabinet and is currently with the Attorney General for finalization before being brought to Parliament

- GoRTT has agreed to complete construction of the National Oncology Centre (NOC)
This Radiation Protection Legislation...

- Was developed in 2007

- Fashioned after the U.K legislative model developed with the assistant from a consultant from Heath and Safety Executive (HSE), United Kingdom

- Consistent with the BSS of that time, but will be reviewed and updated as required wrt standards in the new BSS
Ionizing Radiation (Medical Exposure) Regulations (IRMER) intended to protect persons receiving radiation exposures as part of their diagnostic, (including dental and nuclear medicine), or therapeutic treatment
Ionizing Radiation Regulations (IRR) intended to protect against occupational or work related exposures.

- quality assurance systems
- Planned preventive maintenance (PPM)
- Disposal and Transportation of sources
- Orphan sources
- National Radiation Dose Registry (NRDR) as required by the Ionizing Radiation Regulations and the Basic Safety Standards (BSS).
Hope rekindled ...
Radiation treatment room
Treatment control room
Treatment planning room
Patient exam room
National Oncology Centre

- Approximately 6,600 square metres including:
  - Four (4) Radiation Treatment Bunkers with Linear Accelerators and Cyberknife and HDR Brachytherapy.
Ahora...a este momento tenemos siguiendo servicios clínicos

- Two Cobalt Machines in the public sector
- Two Linear Accelerators in the private sector
- Nuclear Medicine in both the public and private sector
- Low dose cesium source insertion in public hospitals
- Computerized Tomography (CT)
- No hay un Nuclear Reactor en el país
Trinidad and Tobago Team Members

- **Dr. Colin Furlonge**, Specialist Medical Officer, Ministry of Health

- **Dr. Dylan Narinesingh**, Consultant Radiation Oncologist, Ministry of Health

- **Mr. Vladimir Henderson–Suite**, Senior Medical Physicist, Ministry of Health

- **Mr. Stewart Smith**, Senior Health Systems Advisor, Ministry of Health
Muchas Gracias
Preguntas?