



## Service Priorities and Programmes Electronic Presentations

**Convention ID:** 1

**Submitting author:** Mr Nelson LAM

**Post title:** Physicist, Princess Margaret Hospital, KWC

### **Setting Up of Radiation Calibration Laboratory in Hospital**

*Nelson Lam, W. S. Chan, H. K. Hui, C. M. Yeung, Billy Chan, S. C. Chui, Lucillus Leung*

*Medical Physics Unit, Oncology Department, Princess Margaret Hospital*

### **Keywords:**

Radiation Safety

### **Introduction**

After Fukushima nuclear disaster, there is an increase concern about radiation safety in Hong Kong. HA Daya Bay Contingency Plan (DBCP) has been updated, every A&E department has been equipped with adequate amount of survey meters for DBCP. Other departments utilizing radiation in their service, like Oncology, Nuclear Medicine & Operation Theatre, also have numerous of survey meters to be calibrated annually. As a result, a hundred of items are needed to calibrate every year in order to ensure that the quality of radiation survey meters is within standard.

### **Objectives**

(1) To ensure the quality of radiation survey meters in KWC hospitals (2) Share experience of setting up a calibration laboratory in hospital environment (3) Educate colleagues in using radiation survey meters

### **Methodology**

The radiation calibration laboratory is constructed according to ISO-4037 standard. The calibration source is Cs-137 emitting gamma ray with energy of 662 keV. The alignment of survey meters is achieved with the aids of self-aligning laser. Alarm system is activated whilst the radiation is in operation.

### **Result**

**Results:** In 2015, 125 items has been calibrated in KWC. These include 32 survey meters plus 93 pocket dosimeters. Uncertainty of calibration at 95% Confidence Level is +/-10%. The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k=2$ , providing a level of confidence of 95%. The laboratory is approved by Radiation Board of Department of Health. **Conclusion:** Radiation calibration laboratory has been successfully set up in hospital environment with limited resource and space. Radiation safety and security of the calibration laboratory is of paramount importance. The radiation immediate outside the laboratory is at background level. The access of the laboratory is limited to authorized person only with the aid of smart card. Burglary alarm is activated after office hours.