

**International Conference on Occupational Radiation Protection:  
Strengthening Radiation Protection of Workers –Twenty Years of Progress  
and the Way Forward**

Contribution ID: 201

Type: **Poster**

## **Th relation between Hp(10), and Hp(3) for nuclear medicine staff**

The dose to nuclear medicine (NM) staff has been always a crucial topic, and a significant concern owing to manipulation of unsealed radiopharmaceuticals (1). The hands and eye lenses of the radiation workers are exposed significantly during the preparation and administration of radiopharmaceuticals in nuclear medicine departments (2). Three operational quantities, whole-body Hp (10), extremity dose Hp (0.07), and eye lens dose Hp (3), are suggested for use for measurement of skin, eye, and whole-body dose estimation (3). The eye lens is found to be more sensitive to radiation than previously considered, and the dose limit to the eye lens has reduced significantly. Previous studies have focused on finding a relation between Hp (10), which is routinely monitored, and Hp (3) (5). This study aimed to measure Hp (10), and Hp (3) for NM staff at Shiraz Hospitals and evaluate the relationship between these quantities. First, a group of 200 TLD-100 chips was selected and the ECC (element correction coefficient) was calculated for each of them. The dose values to the eye lenses and personal dose equivalent values were measured in 1 working month. To measure the Hp (10) and Hp (3), two groups containing three TLD chips were packaged in a tissue-equivalent holder which had prepared to put on the staff forehead for eye lens estimations (Figure 1) (4). The TLDs were read out by a TLD reader model Harshaw 4500, and the TLD readings were converted to the operational dosimetry quantities. Table 1, listed the Hp (10) and Hp (3) values which are collected for 13 workers and the results were validated with film badges reports. Lindholm et al. in their research showed that the Hp (3)/Hp (10) ratio was 0.7. However, based on our measurements, the Hp (3)/ Hp (10) ratio isn't as a constant coefficient (5). Our findings didn't show any significant relation, the ratio was found to be between 0.18, and 16.05. The possible explanation for such differences between Hp(3), and Hp(10), is the different working manner of the staff, i.e. their working speed, or head, hand, and their body positioning during the work. Therefore it is suggested that the Hp(3) quantity be measured separately with some dosimeters, and it can't be measured based on their personal dosimetry results.

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**Session Classification:** Session 8. Occupational radiation protection in medicine

**Track Classification:** 4. Occupational radiation protection in medicine