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Title of Project: The training and knowledge of radiation exposure among Wits University Orthopaedic Registrars and their implementation of radiation protective measures

Abstract

Introduction: The use of fluoroscopy in the management of orthopaedic injuries has increased significantly in recent decades, particularly in the trauma setting. However, this has exposed the surgeon, hospital staff and patient to higher levels of radiation. This study aimed to evaluate the knowledge of WITS orthopaedic registrars on ionising radiation and assess their use of radiation protection.

Methods: A survey addressing the knowledge of radiation and methods of protection was conducted amongst 50 registrars enrolled at the WITS training centre.

Results: There was a 76% response rate and the data obtained was statistically evaluated. Although 87% know what ionising radiation is, only 34% believe they are adequately familiar with the effects of radiation and methods of protection. Focused education was particularly low with 26% of registrars having received formal lectures. Fifty percent of registrars were unfamiliar with the guidelines of radiation optimisation, and more concerning, even fewer implemented the basic methods of protection. There was no accurate record of individualised annual radiation exposure with only 3 registrars being equipped with dosimeters. Furthermore, registrars were found to be indifferent to the harmful effects of radiation with 76% of trainees regularly obtaining unjustified post-operative x-rays.

Conclusion: Knowledge about ionising radiation and utilisation of protective measures were insufficient amongst Wits Orthopaedic trainees. These findings are consistent with other training institutions in South Africa and around the world. Authors recommend a structured program on radiation and radiation protection be introduced as part of the training program to reduce the detrimental effects of radiation on the surgeon, theatre staff and patient.