



## Dose reference levels for common orthopaedic hand and wrist procedures using intraoperative mini-C-arm fluoroscopy

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### **Abstract:**

Diagnostic reference levels are radiation dose levels in medical radiodiagnostic practices for typical examinations for groups of standard-sized individuals for broadly defined types of equipment. This study aimed to establish local and contribute to national/international diagnostic reference levels for common hand and wrist procedures using mini C-arm fluoroscopy. Data were collected from fluoroscopy logbooks and were cross-referenced against the audit log kept on the machines. A total of 603 procedures were studied. The median radiation dose for wrist fracture open fixation was 2.73cGycm<sup>2</sup>, K-wiring procedures 2.36cGycm<sup>2</sup>, small joint arthrodesis 1.20cGycm<sup>2</sup>, small joint injections 0.58cGycm<sup>2</sup> and phalangeal fracture fixation 1.05cGycm<sup>2</sup>. Wrist fracture fixation used higher radiation doses than phalangeal fracture fixation, arthrodeses and injections. Injections used significantly less radiation than the other procedures. There are significant differences in total radiation doses when comparing these procedures in hand and wrist surgery. Institutional audit data should be collected regularly and should be stratified by procedure type.



### **Biography**

Dr Kiran Madhvani completed his MBBS and BMed-Sci(Hons) at the University of Nottingham in 2017. After completing foundation training in the South Yorkshire deanery, he is now practising as a Junior Clinical Fellow in Trauma and Orthopaedics where he is undertaking research and audit projects in order to broaden his experience prior to entering Specialty Training.

[Webinar on Surgery; Berlin, Germany; November 19, 2020](#)

**Citation:** Kiran Madhvani: Dose reference levels for common orthopaedic hand and wrist procedures using intraoperative mini-C-arm fluoroscopy; Webinar on Robotic Surgery; Berlin, Germany; December 16, 2020