

A European study of patient dosimetry in diagnostic radiology – protocol development and findings

H. Gfirtner¹, P. A. Kaplanis², B. M. Moores³, P. Schneider⁴ and J. Vassilev⁵

¹ *Graf-Tiemo-Str. 16, Neuburg/Inn, Germany*

² *Departement of Medical Physics, Nicosia General Hospital, Nicosia, Cyprus*

³ *Integrated Radiological Services, Liverpool, UK*

⁴ *Institute fur Med Physik, Klinikum Fulda, Fulda, Germany*

⁵ *132 Kliment Ohridsky Blvd, Sofia, Bulgaria*

In a multi centre study more than 600 patient measurements of patients receiving thorax radiography were performed in 5 European cities. Participating centres were Fulda, Liverpool, Nicosia, Passau and Sofia. The dose quantities measured were dose area product, air kerma and entrance surface dose. In addition, for each patient sex, age, weight, height, focus film distance, focus patient distance, patient thickness, kVp, mAs, field size and the nominal film speed were registered. Different x-ray machines were used in the participating centres –Thoravision, Flat panel detector, digital radiography and film screen combinations in two centres (analogue system). The kVp's employed varied between 60 and 150 kVp and the nominal film speed between 200 and 400/800. All mean dose values (skin dose and DAP) for the different centres show a different value for female and male populations. The differences were up to 100% and always higher for the mean DAP. The mean skin dose varied between 0.19 mGy and 0.42mGy for thorax PA and the mean DAP is varied between 40 mGycm² and 455 mGycm².

The differences in results obtained as well as methodologies for multi- national, multi- centre studies will be discussed. Future perspectives for this type of study within the framework of radiation protection and Quality assurance (QA) in Europe will also be discussed as well as the role and function of multi-national radiological data sets including patient dose values.