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PAPER TITLE DETERMINATION OF PATIENT SURFACE DOSE FROM COMPUTED
TOMOGRAPHY EXAMINATIONS

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ABSTRACT (See instructions overleaf)

Computed tomography (CT) has become a major source of the population exposure to diagnostic X-rays, and the knowledge of the doses delivered by the CT equipment has become very important. Considerable efforts should be made to keep these doses to a reasonable minimum, without sacrificing the image quality. The conditions of exposure in CT are quite different from those in conventional X-ray imaging. This has required the development of specific techniques for assessing patient dose from CT. The aims of this work were to determine the doses delivered to various organs of patients undergoing CT of abdomen, thorax and head as measured on the surface of the body and to estimate the risk to the patients. Dosimetric measurements were performed at two different CT scanners (Siemens SOMATOM DR-H and Shimadzu SCT-4500TE). The doses absorbed by different organs (gonads, thyroid, chest and eye lens) and by the examined parts of the body of 90 patients of various sex and ages were measured with TLD-700.

The doses absorbed by different organs during the diagnostic CT examination of the body depended on the technical parameters, such as the number of scans, mAs, the thickness of scans, scanning times, tube voltage and other characteristics, some of which depended on the type and severity of illness. Clinical parameters, such as patient size and composition and patient cooperation with regard to control and motion, also influence the dose and the image quality.