

It has been common practice to periodically monitor the radiation doses of diagnostic x-ray procedures, and in recent years has become a JCAHO requirement. Two general approaches have evolved. One is to develop a table of entrance skin exposures (ESE) per mAs as a function of patient thickness and kVp from which, knowing the patient thickness and technique of a given projection, the ESE can be calculated. A second approach is to develop a table of ESEs for common projections and the standard associated patient thickness. In both cases good practice dictates that the dosimetry tables are developed from on-site radiation exposure measurements. A problem with the first approach is that the resultant table is large and tedious to use in practice. The second approach is readily understandable, but presents data for only one patient thickness for a given projection. It is well known that ESE depends markedly on patient habitus. Presented is an alternative approach that overcomes this limitation. Patient ESEs (or, if desired, effective doses) are reported for small, medium and large patients for a limited number of common projections utilizing modified ANSI chest and abdominal/lumbar spine phantoms. For anatomical regions where patient thickness varies less (extremities, knee, skull), ESE is reported for the standard patient thickness of these projections. Phantom specifications and rationale are presented along with comparisons of phantom and patient ESE data. Also presented is the utilization of the phantoms in fluoroscopy and in AEC acceptance testing and QC.