

## Q.A. Collectible

*Sponsored by CRCPD's Committee on Quality Assurance  
in Diagnostic X-Ray (H-7)*

### kVp Ranges for Various Routine Exams

The selection of kVp for diagnostic x-ray examinations impacts both patient exposure and image quality. Encouraging facilities to use higher kilovoltage techniques with a reduced mAs does reduce patient entrance skin exposures, but it also results in a radiograph with less contrast. The balance between patient exposure and diagnostic quality must always be weighed by the individual(s) having final responsibility for diagnostic interpretation.

The following table provides suggested kVp ranges for routine diagnostic x-ray examinations. It is important when suggesting a new kVp be utilized that the actual kVp be verified by an acceptable testing method. It should be emphasized that specific diagnostic purposes or pathology can require the use of kVp levels quite different from those listed below. But for routine procedures, utilizing the following values as a guide should result in optimal diagnostic images and "acceptable" exposure values.

#### kVp Table

<u>Exam</u>	<u>Suggested kVp Range</u>
Lumbar Spine, AP	75 - 85
Abdomen, AP Supine	75 - 85
KUB W/Iodine	65 - 75
B.E. W/Barium	100 - 120
Skull, Lateral	65 - 75
Full Spine	85 - 95
Cervical Spine	65 - 75
Chest, PA with grid	>100
Chest, PA without grid	85 - 95
Cephalometric	70 - 80
Dental Intraoral	70 - 90

- 1) Facilities with three phase units may want to use values in the low end of the range.
- 2) When the kVp is increased, an appropriate reduction in mAs must also be achieved. At lower energies (below approximately 70 kVp) if you increase the kVp by 10 you should be able to reduce the mAs by half. At higher energies an increase of 15 kVp or more will compensate for a reduction of 50 percent of the mAs and maintain a comparable density on the radiograph.