AbstractID: 6684 Title: Radiographic techniques in screen-film mammography.

The objectives of this study were to document imaging physics parameters associated with mammography physics surveys, and investigate how the choice of tube potential affects mean glandular dose and x-ray exposure time. Data were obtained from 60 mammography units pertaining to mAs, exposure time, half value layer, mean glandular dose and film density. Five representative clinical systems, all from different vendors, had measurements performed of the MGD and x-ray exposure time as a function of x-ray tube potential at a constant film density. For a normal sized breast as represented by the mammography accreditation phantom, 60% of these units were operated at 25 kVp, and 33% at 26 kVp. Median exposure times were 1.14 s at 25 kVp and 0.73 s at 26 kVp. The median MGD was 1.62 mGy at 25 kVp and 1.51 mGy at 26 kVp. A significant correlation was observed between MGD and total exposure time at both 25 kVp and 26 kVp. Choice of x-ray tube potential did not significantly affect the median film density value of 1.5. For a typical clinical x-ray unit, increasing the x-ray tube potential from 25 to 28 kVp reduced the exposure time by 50%, and the MGD 26%.