

Computed Tomography

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In medical x-ray imaging, computed tomography is considered by many persons to be the most important innovation since introduction of the image intensifier. For evidence of the potential importance of this approach to x-ray diagnosis, one need look no further than the half-million dollars capital investment already committed by hundreds of medical institutions in the United States for purchase of a computed tomographic scanner. Realization of the maximum potential of computed tomography will depend not only upon achieving the full capability of computed tomographic units once they are installed in clinical settings, but also upon ensuring that the units operate at their full capability day after day, in an environment in which patient care takes precedence over equipment care. In this environment, it is essential that a physicist or engineer conduct a continuing quality assurance monitoring program to ensure acceptable and reproducible performance of the computed tomographic unit. In the following special series of articles on computed tomography, considerable advice is offered on the implementation and operation of a quality assurance program for computed tomography.

The technical improvements in computed tomography which have occurred over the last four years suggest that additional advances will be forthcoming in the near future. Indicated in the following articles are some of these advances in the areas of x-ray transmission and radionuclide emission computed tomography. The articles were selected from among the papers presented at the technical program "Applications of Optical Instrumentation in Medicine V," September 16-19, 1976, Washington, D. C., cosponsored by the Society of Photo-Optical Instrumentation Engineers and the Society of Photographic Scientists and Engineers. Copies of the proceedings of this technical program (SPIE Volume 96) are available from the headquarters office of SPIE.