

# Health Legislation

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It is a fact that 95% of the radiation to which the American public is exposed comes from exposure to medical x-ray. Only 2% of man's exposure comes from the nuclear power industry which is stringently regulated, while strangely medical and dental x-ray usage is not in most cases subject to control. It has been estimated that medical x-ray exposure could be reduced to less than 10% of its present level by the use of better equipment and improved techniques while at the same time improving the diagnosis.

The Radiation Control for Health and Safety Act of 1968 addressed itself to this issue by aiming to control the equipment used. John C. Villforth, Director of the Food and Drug Administration's Bureau of Radiological Health, stated in hearings last March before the Senate Commerce Committee, "The authority to promulgate standards for radiation-emitting equipment is among the most important provisions under the Radiation Control for Health and Safety Act."

However, as important as it is to ensure that the equipment operate optimally, it is widely agreed that users of that equipment have to be educated as to their role if we are to significantly reduce incidences of exposure to unnecessary radiation. Clearly, the equipment must operate to eliminate radiation leakage, the users of the equipment must be well trained, and the equipment must be used so as to obviate the need for retakes when they are repetitive and unnecessary.

## **Federal Legislation**

Realizing the need for legislation aimed at the users of the equipment, I introduced House Resolution 673 (H.R. 673), the Radiation Health and Safety Act of 1973. This bill is identical to Senate Bill 667 (S. 667) which Senator Jennings Randolph (Democrat, W. Va.) introduced into the Senate. In the September issue of this *Journal*, it was incorrectly reported that my legislation was discretionary; that is not so. H.R. 673 legisla-

tion mandates, as does the Senate bill, federal minimum standards for the accreditation of education institutions conducting programs for the training of radiologic technologists and mandates minimum standards for the licensure of radiologic technologists. These standards may distinguish between radiation technologists including medical and dental technologists, radiation therapy technologists, nuclear medicine technologists, and phorotontgen technicians and technologists in training.

The standards in H.R. 673 would be the national minimums required in these fields and would make it unlawful for an educational institution not accredited to conduct such training and would make it unlawful for an individual not licensed to apply radiation to a patient. There is a need to ensure that radiologic technologists have reached a degree of proficiency and thus can perform competently. A voluntary certification program is not sufficient and will not work; at the present time, no more than half of the radiologic technologists in the nation have registered with the voluntary certification program.

## **Exposure Levels**

A totally noninjurious level of exposure to x-radiation has not been established; and people are continually being subjected to radiation exposure, some of it unnecessary and even dangerous. The United States Public Health Service has found that x-radiation levels lower than previously realized can cause genetic damage. X-rays do harm to a fetus in early pregnancy. Small amounts of radiation can also cause birth defects, damage to the reproductive organs, and cell damage in adults.

There is no evidence to suggest that there is a radiation exposure level so low that the probability of damage is zero. There are those who believe that the present American population and generations yet unborn are and will be adversely affected by unnecessary x-radiation exposure, all of which is

cumulative in its effect. The International Commission on Radiological Protection has indicated that present medical x-ray exposure is causing 3,000 deaths per year in the United States from various forms of cancer and genetic damage and may be introducing each year into future generations approximately 30,000 deaths from malignancies, stillbirths, and spontaneous abortions because of genetic damage.

### **Nuclear Medicine**

Often the dose to the patient from a nuclear medicine procedure is far less than the dose from x-radiation. However, the same problem can exist with the use of radionuclides and must be guarded against, namely unnecessary exposure to the patient.

Care should be taken to ensure that instruments are calibrated daily to obtain proper readings and that the doses are correct. Most physicians do calibrate their instruments periodically; however, a United States Public Health Service report entitled "Survey of the Use of Radionuclides in Medicine" in 1970 showed that 1% of the physicians never did calibrate their machines, and a significant number only did so monthly or less frequently. It has been found, too, that there is a variation in the size of doses given by different doctors. The physician and technologist must take all precautions to see that the dose to the patient is reduced. Medical literature, I am told, admonishes that such techniques as blocking and accelerated elimination should be used where appropriate when therapeutic doses are administered to the thyroid and when liver, brain, or placental scans are performed.

A physician practicing nuclear medicine must be licensed by the United States Atomic Energy Commission. The A.E.C. regulations permit technologists to handle isotopes and do other laboratory work, but only a physician is permitted to administer these isotopes to a patient. The technologist is to be under the doctor's direct supervision, but sometimes the technologist is administering isotopes to patients without proper supervision from the doctor or without any supervision at all.

Total medical radiation exposure from diagnos-

tic x-rays and nuclear medicine procedures will continue to increase. In 1971 it was estimated that 25% of all hospital patients were exposed to nuclear materials for diagnostic and therapeutic reasons. Care must be taken to see that the patient is protected from unnecessary overexposure and that the physician and technologist are aware of the hazards.

### **Licensure**

The most sophisticated and modern of x-ray systems cannot protect the health and safety of patients unless the technologists operating the equipment are adequately trained and licensed. In some states, we license car mechanics and T.V. mechanics. Does it not make sense that we should license radiologic technologists who handle the most sophisticated of equipment, equipment which can provide extended life if properly used or shorten life if improperly used?

As nuclear technologists you would, I hope, actively support this legislation and encourage your representatives in Congress to push for its enactment. There is a great need for competent, well-trained radiologic technologists. Enactment of this legislation will not serve to create a situation resulting in economic gain to a few by limiting the number of technologists in the fields. Rather, it will encourage and attract competent personnel who can be confident in the integrity and responsible outlook of the profession. It certainly will encourage radiation safety for the protection of both the patient and the user of the equipment.

Authorizing legislation for health manpower personnel programs is due to expire in June 1974. Hearings on the allied health professions and the issue of licensure and certification will be held after Congress reconvenes in January. Now is the time to make your opinion known to your representatives.

Please write also to Senator Edward Kennedy, Chairman of the Subcommittee on Health of the Senate Labor and Public Welfare Committee and to Representative Paul Rogers, Chairman of the Subcommittee on Public Health and Environment of the House Interstate and Foreign Commerce Committee to let them know of your views.