

State Planning for Radiation Control

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PUBLIC HEALTH agencies have the clear responsibility of balancing the hazards of radiation against the physiological and social values of its use. Historically, major public health programs were developed after it had been amply demonstrated that a health problem involving substantial mortality and morbidity existed. In the radiation field, however, the total number of deaths in the United States which may be directly attributed to excessive exposure to ionizing radiation has been less than the number of persons killed on our highways in a single weekend.

Actually, the apparent evidence of a radiation health problem in the world today is so small that one may be justified in asking why it is receiving so much attention. There are a number of answers to this question. One of the most important is worldwide awareness of the capability for devastation of nuclear systems of even modest proportions.

Objectives and Planning

The major objectives of a State radiological health program should be to recognize the essential uses of radiation, and to prevent, reduce, and when possible, eliminate unnecessary exposure to ionizing radiation from a wide variety of significant sources in order to protect the health and safety of the public. A program plan should establish the following major functions:

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1. Determine the extent and character of the radiation problem by identifying and measuring all sources of population exposure.

2. Reduce exposure to radiation through supervision of installations.

3. Obtain new information and develop better methods of control by research and evaluation studies.

4. Conduct information and education programs for the public and professional groups on the health impact of radiation exposure.

Answers to a number of practical questions must be found before a radiological health program can be initiated. There must be knowledge of what radiation hazards exist, where they exist, and why, and of the groups directly affected and to what degree. These groups should be involved in the planning of the program along with community and intra-agency groups. Only then can the benefits to be expected from a program and a regulatory agency be estimated.

The administrator must see that program plans meet certain criteria. Plans should be consistent with immediate and anticipated human needs. They should be soundly rooted in agency philosophy and consistent with the philosophy of the health professions. Plans should be based on statistical and community research that is accurate and imaginative. Plans should be feasible, flexible enough to allow for the unexpected, consistent with available or attainable funds and personnel, and acceptable to the community. They should be simple enough to be interpreted easily to staff and to the public. Finally, plans should be designed

to improve, strengthen, or focus the service in such a way that each planning point leads to improvement or sharpens relationship to needs.

Importance should also be given to maintaining a close working relationship with all professional groups if a radiological health program is to operate smoothly and successfully. Emphasis should be given to alerting the public to a need for a program which can provide security from fears that would hamper the constructive development of nuclear industry and medicine. Public understanding is basic because adequate radiological health programs require both legal authority and financial support on a scale possible only with general public acceptance.

Enabling Legislation and Financing

The first step in developing a good State regulatory program in radiological health is the adoption of legislation giving specific authority to the State health department. Legislation should be of the enabling type authorizing the administration to adopt regulations to serve as a guide for radiation users and provide a tool for enforcement. In addition, the scope of regulations should be based on studies conducted to determine what is needed to accomplish the program objective.

Detailed regulations can best be considered after the needs of the State have been defined. There are several sources of suggested regulations, but these guides were not meant to be adopted verbatim. However, all regulations must be based on the same standards; the recommendations of the National Committee on Radiation Protection and Measurement, which is uniquely qualified to appraise radiation hazards, most frequently serve as guides.

Adequate protection of the public requires adequate financial support. Budget needs, of course, will depend upon the extent of the program. The Division of Radiological Health of the Public Health Service has suggested a minimum of \$120,000 as an initial outlay to finance a radiological health program in its first year. This figure includes the cost of basic equipment and other nonrecurring expenditures, and future budgets should recognize this existing equipment as well as additional needs.

Of course, any State may initiate a radiological endeavor on a much more modest scale than the sum previously mentioned, but a broad coverage activity will entail expenditures in this range.

Alternative ways of financing are by appropriated funds, by fees paid by the user, and a combination of fees and appropriated funds. In general, the first method is preferred.

In budgeting for a program, it should be kept in mind that qualified professional personnel will be more easily attracted to the program if the level of remuneration is competitive with that of industry or other jurisdictions. If States are to realize a successful program they must be able to recruit and hold qualified persons.

Personnel, Equipment, and Facilities

The success of any radiological health program depends to a great extent upon the personnel. The importance of a qualified staff under competent supervision and direction cannot be overemphasized. Also, it should be remembered that there is no substitute for basic professional training for qualified personnel.

The staff members assigned to radiological health activities will require various degrees of training, depending upon the number and type of radiation sources within the State and the extent and nature of the program contemplated. Available facilities and resources of the Atomic Energy Commission and the Public Health Service can be utilized to provide basic training of personnel in techniques and methods.

A look at the past shows that there has been a trend toward area specialization which has created a lack of well-rounded personnel. While specialization can be extremely advantageous, it would also be desirable to have present and future training broad enough to cover all program activities. Programs in reactor health physics should be amalgamated with those programs oriented to medical health physics, thus providing health departments with "complete" health physicists.

Another very effective mechanism for assistance in the development of radiological health program and training activities within State and local health agencies is the participation of trained Public Health Service personnel on di-

rect assignments. These persons not only assist in carrying out the program during their tenure, but also train the State and local personnel who will later man the program. In many instances, this system has enabled a State to release one member of its own staff for intensive graduate training.

Adequate equipment and facilities are necessary for a complete and comprehensive radiological health program. First, the equipment and facilities are needed to support the field activities in inspection and radiation surveillance. Second, adequate and up-to-date radiation detection equipment is mandatory for maintaining the capability of evaluating the hazard from low levels of radioactivity. This also serves to attract and retain qualified technical staff. Without this equipment the program would exist but could not advance in the technology which is required in this nuclear age.

All radiation detection instruments require skilled maintenance and calibration if they are to serve the purpose for which they are intended. The mere purchase of an instrument or instruments serves little purpose. A complete maintenance schedule should insure that the instruments will be in proper operating condition when needed and will be as accurate as necessary for the service they are intended to perform.

Program Activities

Experience has indicated that State radiological health programs can be conveniently divided into basic planning and administration

and the following specific activities: (a) X-ray survey and control, (b) environmental surveillance, and (c) radioactive materials inspection and control. A fourth category to include other activities may be desirable if any are of sufficient magnitude to warrant full-time personnel and substantial fund allocations.

Planning and administration, including organization, are needed to carry out the specific areas requiring program action. Specific activities warrant recognition as specific program entities only if the total problem has been identified, staffing and funds provided, and methods and procedures developed accordingly.

Summary

It is a clear responsibility of each State to protect the health and safety of its citizenry from the hazards of ionizing radiation. In order to meet this responsibility, a State must have a comprehensive radiological health program. The primary objective of the program should be to eliminate unnecessary or excessive exposure to radiation. To achieve this a State must provide adequate enabling legislation, an appropriate system of financing, competent and trained personnel, and the necessary equipment and facilities. A system of evaluation should be built into the program. Activities will depend upon the requirements of the individual State. It must be remembered that a comprehensive program of radiation protection and control is both technically and administratively complex.