63

ARMY SERVICE FORCES
UNITED STATES ENGINEER OFFICE
MANHATTAN DISTRICT
OAK RIDGE, TENNESSEE

728143

IN REPLY REFER TO

EIDMK-11
IB-9

Subject: General Information on Therapeutic Applications of Radioisotopes.

MEMORANDUM to Persons noted on Distribution Sheet.

Inclosed are mimographed copies of excerpts from certain letters which this office has received concerning the use of radioisotopes in therapeutic applications.

IB-1 is a list of institutions and physicians which are known to have used or to be using radioactive materials for therapeutic uses. Additions to this list will be appreciated. This list gives some appreciation for the number of therapeutic users of isotopes. It will be useful in considering the problems of allocation for human applications.

item 35, 36 → IB-2 Contains excerpts from letters from Dr. J. G. Hamilton and Dr. Low-Beer giving an appraisal of the value of P 32 in therapy and their estimates of local and national needs for this isotope.

item 39 → IB-3 is an excerpt from a letter from Dr. R. D. Evans discussing some aspects of the distribution of radioisotopes for therapeutic applications.

item 38140 → IB-4 contains excerpts from letters from Dr. Evans and a number of others concerning the value of P 32 and I 131 in therapeutic applications and estimates of the needs for these isotopes.

item 43 → IB-5 contains excerpts from letters from Dr. Stone, Dr. Scott and Dr. Low-Beer expressing reasons for the desirability of using high specific activity P 32 in therapy and biological investigations.

It would be appreciated if you would study this material in considering the problems of the distribution of radioisotopes for therapeutic applications. It is planned very soon to have a meeting of the Advisory Sub-Committee on Human Applications. It would be desirable to have any pertinent suggestions sent to the undersigned for presentation at the initial meeting.

Very truly yours,

Paul C. Aebersold

PAUL C. AEBERSOID,
Chief, Isotopes Branch,
Research Division.

5 Incls.:
1. Form IB-1
2. Form IB-2
3. Form IB-3
4. Form IB-4
5. Form IB-5

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List of institutions and physicians currently supplied radioactive isotopes for therapeutic use by the Radioactivity Center, M.I.T.:

Dr. Ellery C. Allen, 922 State Tower Building, Syracuse, N.Y.
Dept. of Med. Res., Banting Institute, Univ. of Toronto, Canada
Dr. S. Blank, Dept. of Radiation Therapy, Univ. of Minn., Minneapolis.
Dr. J. L. Boyer, Univ. of Penna., Philadelphia, Penna.
Dr. W. E. Chamberlain, Temple Univ. Hosp., Philadelphia, Penna.
Dr. E. M. Chapman, Mass. General Hospital, Boston, Mass.
Dr. L. F. Craver, Memorial Hospital, New York City
Dr. Wm. Dameshek, Children's Hospital, Boston, Mass.
Dr. Louis K. Diamond, Children's Hospital, Boston, Mass.
Dr. Lowell A. Erf, Jefferson Medical College and Hosp., Philadelphia
Dr. E. S. Jorenson, Dept. of Physiology, Univ. of Toronto, Canada
Dr. Byron E. Hall, Mayo Clinic, Rochester, Minnesota
Dr. J. W. Hooker, Presbyterian Hosp., Philadelphia, Penna.
Dr. J. R. Maxfield, Jr., 511 Medical Arts Bldg., Dallas 1, Texas
Dr. E. R. Pendergrass, Dept. of Radiology, Univ. of Penna, Philadelphia
Dr. Rulon Rawson, Mass. General Hospital, Boston, Mass.
Dr. M. Rosenthal, 51 E. 60th St., N.Y. 28, N.Y.
Dr. J. F. Ross, Evans Memorial Hosp., Boston, Mass.
Dr. S. M. Seidlin, 932 Fifth Ave., New York City
Dr. W. R. Tweedy, Loyola Univ. Sch. of Med., 706 S. Walcott Ave, Chicago
Dr. Shields Warren, N.E. Deaconess Hosp., Boston, Mass.
Dr. Paul Hahn, Vanderbilt University, Nashville, Tenn.

Other places known to have used or to be using radioactive materials for therapeutic use:

Washington University Hospital, St. Louis, Missouri
Billings Hospital, Chicago, Ill.
Ohio State University Medical School, Columbus, Ohio
University of Michigan Hospital, Ann Arbor, Michigan.
University of Rochester Medical School, Rochester, N.Y.
Harvard Medical School, Cambridge, Mass.
University of California Radiation Laboratory, Berkeley, Calif.
University of California Hospital, San Francisco, Calif.
Western Reserve University Hospital, Cleveland, Ohio
Swedish Hospital, Seattle, Wash.
Harper Hospital, Detroit, Mich.
University of Iowa Medical College, Iowa City, Iowa

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EIDMK-11
IB- 17

DISTRIBUTION

1. Interim Advisory Committee on Isotope Distribution Policy.
2. Advisory Sub- Committee on Human Application.
3. Advisory Sub-Committee on Allocation and Distribution.
4. Clinton Laboratories Isotope Committee.
5. Dr. Eugene Wigner, Dr. J. Lum • Clinton Laboratories.
6. Medical Division - Col. Fleming, Capt. Howland.
7. Dr. R. S. Stone.

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The Experimental Use of Radioactive Materials in Human Subjects at AEC Establishments.

At the request of Dr. Shields Warren, Director, Division of Biology and Medicine, the Subcommittee on Human Application, Committee on Isotope Distribution respectfully submits the following recommendation:

1. Radioactive materials should be used in experiments involving human subjects when information obtained will have diagnostic value, therapeutic significance, or will contribute to knowledge on radiation protection.

2. Radioactive materials may be used in normal human subjects provided

a. The subject has full knowledge of the act and has given his consent to the procedure.

b. Animal studies have established the assimilation, distribution, selective localization and excretion of the radioisotope or derivative in question.

3. Radioactive materials may be used in patients suffering from diseased conditions of such a nature that there is no reasonable probability of the radioactivity employed producing manifest injury provided:

a. Animal studies have established the assimilation, distribution, selective localization and excretion of the radioisotope, or derivative, in question.

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b. The subject is of sound mind, has full knowledge of the act and has given his consent to the procedure.

c. Full description of experimental procedures and calculated estimates of radiation to be received by body structures and organs are submitted.

4. Investigations are approved (1) by medical director or his equivalent at the installation responsible for the investigation, (2) by the Director, Division of Biology and Medicine, and (3) full written descriptions of experimental procedures and calculated estimates of radiation to be received by body structure and organs must be submitted.

5. Radioisotopes and radiation doses are to be limited as follows:

1. Tissue radiation dose at the site of greatest concentration shall not initially be greater than 0.1 per day.

2. The effective net half-life which a combination of the biological and physical half-life of radiosotope and/or its derivative shall not be greater than 20 days.

3. Administered material limited to those emitting electrons and photons.

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APPENDIX III file isotopes

NEED FOR COMMITTEE

The Isotopes Division recommends the establishment of a new Committee on Isotope Distribution for the following reasons:

1. Use of an advisory group has in the past proved essential in carrying out the isotope distribution program.

2. Use of an advisory group composed of recognized authorities in the field aids in maintenance of good will between the Commission and scientific and technical personnel throughout the country.

3. Scientists appointed to the advisory group are experienced users of radioactive materials and are qualified to give valuable technical assistance as well as general direction to the program.

4. Requests for radioisotopes to be used in human beings should be reviewed and evaluated by a group who are experienced and current users of radiomaterials for medical purposes.

5. The Isotopes Division cannot be sufficiently aware of all data and information on the use of isotopes in various fields of endeavor and therefore will need expert advice on many requests for non-medical as well as medical applications.

SUGGESTED PERSONNEL

It is suggested the new Committee be composed of the following persons:

1. Giacchino Failla, Ph. D., Professor of Radiology, Columbia University Medical School, New York.

2. Hymer L. Friedell, M. D., Director, Department of Radiology, Lakeside Hospital, Western Reserve University, Cleveland.

3. A. H. Holland, Jr., M. D., Medical Advisor, Oak Ridge Directed Operations, A. E. C.

4. J. G. Hamilton, M. D., Associate Professor, Medical Physics Department, University of California, Berkeley.

5. Joseph W. Kennedy, Ph. D., Chairman, Department of Chemistry, Washington University, St. Louis.

6. Robley D. Evans, Ph. D., Professor of Physics, M. I. T., Cambridge, Mass.

7. Robert F. Mehl, Ph. D., Director, Metals Research Laboratory, Carnegie Institute of Technology, Pittsburgh, Pa.

8. Austin B. Brues, M. D., Medical Director, Argonne National Laboratory, University of Chicago, Chicago, Ill.

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9. P. C. Aebersold, Ph. D., Chief, Isotopes Division, as Secretary to the Committee and Liaison Representative of the A. E. C.

It is suggested that Dr. Failla or Dr. Hamilton might be appointed Chairman of the Committee.

FUNCTIONS OF COMMITTEE

The proposed functions of this Committee would be to aid the Commission in establishing new policies on the distribution of radioactive materials and to review from time to time existing policies. On specific isotope distribution problems it is hoped the members of the main committee would function as two subcommittees whose personnel and functions are given in the next two paragraphs.

Drs. Failla, Friedell and Holland should compose a Subcommittee on Human Applications who would review all initial requests for radioisotopes to be used experimentally or otherwise in human beings. Subsequent requests of a given user for the same purpose would not be reviewed.

Drs. Hamilton, Kennedy, Evans, Mohl and Brues should compose a Subcommittee on Allocations and Distribution who would review doubtful requests for radioisotopes to be used in fundamental and applied research, the field of education, industrial application, and commercial enterprises. Generally, questionable requests in various fields would be referred to the above authorities in the following manner:

Biology - Dr. Hamilton

Chemistry - Dr. Kennedy

Physics, Industrial and Commercial Applications - Dr. Evans

Metallurgy, Industrial and Commercial Applications - Dr. Mohl

Safety and Radiation Protection - Dr. Brues

The Isotopes Division would assume responsibility for allocations of isotopes except for those cases specifically noted in the preceeding two paragraphs. Because of the experience obtained during the past year and half of the program and the development of the Advisory Field Service, the Division is well qualified to handle this responsibility. During the past few months it has been handling the routine work of allocation with a minimum of assistance by the advisory subcommittees. However, the Division has had to rely on the subcommittees for assistance on difficult decisions.

MEETINGS

Experience has shown that meetings of the advisory groups on isotope distribution are not required frequently. Routine allocation advice and minor changes in policy have readily been handled by correspondence.

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The main committee has met only once at which time it set up the major existing policies and allocation arrangements. The subcommittees have accumulated problems which have required a meeting once or twice a year.

It is believed that the new committee would need to meet only once or twice a year. Most problems could be handled by correspondence. Committee members would no doubt serve without reimbursement except for expenses of travel to the occassional meetings. Although arrangements were made to reimburse present subcommittee members for secretarial and other incidental expenses, no request was made for reimbursement because of the small amount of work involved. It would be desirable to hold an initial meeting of the new committee soon after January 1 for the purpose of reviewing existing policies and considering new questions of policy which have arisen.

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