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New Microwave Diathermy Applicator Designs Presented to FDA for Public Use

On August 15, 1978, Deputy Commissioner of Food and Drugs Sherwin Gardner accepted, on behalf of the Agency and the public, the designs for three new microwave diathermy applicators. The designs were developed by Transco Products, Inc., according to Bureau of Radiological-Health specifications, and were dedicated to the Agency for public use.

The new applicators are of the direct contact type and are intended for delivery of therapeutic tissue heating when in very close proximity to the prescribed tissue of the patient. Unlike presently used noncontact applicators, which are spaced at a distance of 2.5 to 10 centimeters from the patient and radiate microwave energy that can result in unnecessary exposure to the patient and equipment operator, the contact applicators minimize stray radiation.

One of the new designs operates at 2450 megahertz and is a circularly polarized horn with a microwave choke around a 15-centimeter diameter aperture. The other two, which operate at 915 megahertz, are designed with four ridges inside a circular waveguide to provide circular polarization. The larger of the 915-megahertz applicators has a 25-centimeter diameter aperture with three concentric annular chokes, while the smaller has a 15-centimeter diameter aperture with one annular choke. With a minor design modification of the smaller 915-megahertz applicator (specifically, placing a thin sheet of absorbing material around the choke's exterior surface), the three applicators meet the safety and heating effectiveness performance requirements of the draft proposed standard for microwave diathermy equipment.

Laboratory tests of leakage suppression and energy deposition rate have been performed on all three designs to determine the net power needed to induce effective heating with minimum leakage. For the 2450-megahertz applicator the net power needed to deliver 235 watts per kilogram in a planar muscle phantom with a 1-centimeter layer of simulated fat is 19.3 watts, and the maximum leakage at this power level is 0.2 milliwatt per square centimeter. For the large 915-megahertz applicator the corresponding heating and leakage values are 36.4 watts and 0.15 milliwatt per square centimeter, while for the smaller model they are 33 watts and 2.5 milliwatts per square centimeter.

The 2450-megahertz applicator also has been tested clinically for leakage suppression characteristics. Results of these tests, which are being prepared for publication as a Bureau report, indicate that for particular treatments, phantoms

can be used effectively to predict the leakage levels existing under actual clinical situations. When the report becomes available for distribution, ordering information will be placed in the BRH BULLETIN.

For further information or for inquiries about the availability of drawings for the new designs, please contact Dr. Gideon Kantor, Bureau of Radiological Health (HFX-240), 5600 Fishers Lane, Rockville, Maryland 20857, telephone (301) 443-3840.

Bureau Developing Slide/Tape Package for Consumers on Diagnostic X Rays

The Bureau of Radiological Health is developing an educational slide/tape package for consumers called "X Rays: So You Want To Be in Pictures?" The package explains the risk/benefit concepts involved in diagnostic radiology and lists specific actions that can be taken by consumers to reduce the possible risks. Among the topics covered are the use of x rays in pregnancy, mammography, and gonad shielding.

In accordance with a recommendation of the Medical Radiation Advisory Committee, the package is being pilot tested by the Bureau's Division of Training and Medical Applications with the assistance of FDA Consumer Affairs Officers across the country. The testing is being conducted with three types of audiences: school teachers and students, patients and personnel in medical facilities, and general community groups. Comments also are being solicited from various organizations, including the American College of Radiology, the Center for Medical Consumers, the American Academy of Family Physicians, and the American Hospital Association.

Based upon results of the pilot test and analysis of audience comments, the slide/tape package will be revised, prepared in final form, and made available to the public for loan from the Consumer Affairs Officers and the Bureau or for purchase from the National Audiovisual Center. The final package will include supporting materials, such as a bookmark with the key consumer messages and a script booklet.

Bureau to Cosponsor Nuclear Medicine Workshops at International Meeting

The Bureau of Radiological Health and the New England Nuclear Corporation will cosponsor two training workshops for nuclear medicine physicians and allied health personnel at the Second International Congress of the World Federation of Nuclear Medicine and Biology. The Congress will be held September 17 to 21, 1978, at the Washington Hilton Hotel, Washington, D. C.

The aim of the Congress is to provide an international forum for the sharing of scientific information, the dissemination of knowledge, and the promotion of