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## NEWS BRIEFS

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### Medical Physicist Proposes New Radiation Unit

In response to the general public's widespread fears and misconceptions about exposure to small amounts of ionizing radiation, John Cameron, PhD, Professor Emeritus in the departments of medical physics, radiology, and physics at the University of Wisconsin, Madison, has recommended a new radiation measuring unit, the "Background Equivalent Radiation Time" (BERT), as a supplement to milliRem (mRem) and milliSievert (mSv) for the lay public.

The BERT unit would represent the number of days, weeks, or months of natural background radiation that would impart the same amount of radiation as that emitted by a given radiologic procedure. For example, assuming that an average adult receives 1 mRem (0.01 mSv) from naturally occurring radiation per day, a chest X-ray procedure would be equivalent to about two weeks of exposure to natural

radiation (BERT = 2 weeks). Similarly, a mammogram would impart about three months of exposure to natural radiation (BERT = 3 months). Thus, according to Dr. Cameron, "instead of coping with abstract concepts like milliRem and milliSievert, the general public would be provided with an understanding of radiation exposure through the more familiar idea of time." Continues Dr. Cameron, "if a patient asks a doctor how much radiation he was exposed to following some chest X-rays, and the physician replies '10 milliRem' [0.1 mSv], the patient is unlikely to comprehend what that really means. But if he is told that the exposure he received was equivalent to, say, two weeks of naturally occurring background radiation, that gives him something more tangible and understandable."

"Neither patients who undergo radioactive procedures in hospitals nor people who work in nuclear plants have an understanding of radiation or the scientific language behind it," explains Dr. Cameron. "I am not ad-

vocating that we do away with milliRem and milliSievert at all, nor am I saying that the BERT should be used in the scientific literature. Rather, I am interested in publicizing the BERT to the radiation sciences community to encourage its use in informal situations. In the long run, we hope to show the public that small amounts of radiation exposure are not something to be feared." Dr. Cameron further points out that "the conversion to the BERT is simple because if one knows the EDE [estimated dose equivalent] in the milliSievert or milliRem, one can estimate the days, weeks, months, or years of equivalent natural radiation exposure." Dr. Cameron has recommended that manufacturers of X-ray products label their units with BERT figures for the most common radiologic procedures.

Newly proposed radiation units in the United States must go through The National Commission on Radiation Protection (NCRP) and the International Committee on Radiation Units

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### HLRW

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ledge about repository design and scientific characterization of a geologic site will increase, thereby, improving our ability to safely store the waste in a more methodical, thoughtful manner, rather than going about it frantically." In fact, in 1984, the International Council of Scientific Unions recommended that the secure storage of solidified HLRW on-site for up to 100 years might be beneficial since in that duration of time, the wastes' heat content would decrease rapidly, thus reducing its thermal output and making it possible to use less underground space for disposal. The

BRWM report advises, however, that while on-site capacity to maintain HLRW should be sufficient for 100 years, "[that] alternative may be irresponsible for the long run... due to uncertainties associated with maintaining safe institutional control over [HLRW] at or near the surface for centuries." Dr. Brill cautions that "On-site storage of these wastes is only a temporary stopgap measure."

Stanley J. Goldsmith, MD, director of the department of physics-nuclear medicine, Mt. Sinai Medical Center, New York City, a member of New York State Low-Level Waste Siting Commission, states "Opponents of

geologic disposal have not properly considered the consequences of *not* burying the waste. Critics of the plan are citing risks of extremely low probability as an argument against it." "There is no real debate concerning the technical validity of geologic disposal of [HLRW]," concludes Dr. Brill. "The problems are more of a socioeconomic nature, and that is clouding the entire issue. Sooner or later someone is going to have to take the responsibility of dealing with this issue. The waste is not going to just go away. I see no alternative to geologic disposal."

*Palash R. Ghosh*

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and Measurements (ICRU) to be formally instituted and accepted. "But it is very hard for a new unit to be accepted," says W. Roger Ney, executive director of the NCRP and technical secretary of the ICRU. "There's a tendency among these bodies to resist the institution of new radiation units because there is a feeling that more units are unnecessary and would complicate things." Mr. Ney further points out that for international acceptance, any new scientific unit must be approved by The General Conference of Weights and Measures, an international scientific organization formed by an 1897 treaty. "It took nearly three years for them to formally adopt the milliSievert unit," he adds.

In preliminary, informal discussions with NCRP concerning his unit, Dr. Cameron says that they "were unenthusiastic." For the time being, he says, "I want to promulgate the use of the BERT unit throughout the radiation sciences community in this country."

### National Research Council Releases Updated Monograph on $^{18}\text{F}$ Labeling

The National Research Council has released a monograph entitled *Fluorine-18 Labeling of Radiopharmaceuticals*, a comprehensive review of fluorine-18 ( $^{18}\text{F}$ ) radiochemistry. Written by Michael R. Kilbourn, PhD, associate professor of internal medicine and director of positron emission tomography (PET) chemistry, University of Michigan Medical Center, Ann Arbor, the publication will assist experienced chemists in evaluating the current status of  $^{18}\text{F}$  radiochemistry and provide a thorough review of this rapidly growing specialty within radiopharmaceutical chemistry. "There was

quite a need to update the literature, since the last review was written in 1986," Dr. Kilbourn told *Newsline*. "Since fluorine-18 is a leading positron emitter, the field has grown tremendously in the past three or four years, as new reagents are quickly emerging. I attempted to include as many reports of syntheses with  $^{18}\text{F}$  as possible."

The monograph represents the latest in a series of Department of Energy-sponsored publications produced by the National Research Council's Committee on Nuclear and Radiochemistry that revises and updates the literature on radiochemistry, radiochemical techniques, and nuclear medicine.

"Dr. Kilbourn has done a great service by providing us with a timely, well-referenced monograph," says Joanna Fowler, PhD, senior chemist at Brookhaven National Laboratory, Upton, New York, a member of the Committee. "It is extensive, well tabulated, and contains an interesting historical account of the development of fluorine-18 labeling."

Capt. William H. Briner, (USPHS, ret.), director of the radiopharmacy and the nuclear medicine laboratory, associate professor of radiology, Duke University Medical Center, Durham, North Carolina, says that the monograph's publication "augurs well for PET chemistry and for nuclear medicine in general." Stephen Yates, PhD, department of chemistry, University of Kentucky, Lexington, a member of the Committee, notes, "There is a tremendous amount of interest in fluorine-18 labeling, and we expect to publish more updates on its chemistry in the next few years."

Those interested can obtain copies of the 149-page monograph by contacting: Committee on Nuclear and Radiochemistry, Board on Chemical Sciences and Technology, National Research Council, 2101 Constitution

Ave. NW, Washington, DC 20418; (202) 334-2156.

### SNM and ACNP Propose Revisions to CLIA

The Society of Nuclear Medicine (SNM) and the American College of Nuclear Physicians (ACNP) have responded to the proposed rule on regulations to implement the Medicare and Medicaid Clinical Laboratory Amendments of 1988 (CLIA), which the Health Care Financing Administration (HCFA) proposed last May. The SNM and the ACNP have requested that HCFA modify its proposed personnel requirements for directors or technical supervisors of in vitro radioassay laboratory facilities to state that American Board of Nuclear Medicine (ABNM) or American Board of Science in Nuclear Medicine (ABSNM) certification is adequate qualification for the position.

In a written statement to HCFA dated August 20, 1990, SNM President Naomi P. Alazraki, MD, and ACNP President Robert E. Henkin, MD, outlined their organizations' position on the proposed revision. "For the purpose of performing or supervising radioassays, certification by the American Board of Nuclear Medicine or the American Board of Science in Nuclear Medicine is equivalent to certification by those boards explicitly listed in your proposed regulations. Therefore, certification by ABNM or ABSNM must be explicitly listed as satisfactory qualification in order to allow nuclear medicine physicians to continue to serve as the laboratory director and/or technical supervisor of services that are primarily radioisotopic, specifically, the radioassay laboratories."

The SNM and ACNP comments on  
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