



Meeting Our Patients' Current, Future Needs for Radionuclides

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The future of radionuclide therapies and innovative research in molecular imaging/nuclear medicine depends on a reliable, affordable, and sustainable domestic supply of radionuclides. Realizing the continued criticality of this issue in the nation, SNM has developed an important, new position paper on a proposed National Radionuclide Production Enhancement (NRPE) program.

Members of the NRPE Task Force, who are experts in the field, have charted a multiyear course of activities that our lawmakers must take to initiate a long-term solution to our nation's radionuclide production shortage. The task force has identified 5 specific goals that would make the NRPE program a reality. This suggested program addresses the current and projected shortfalls of radionuclides in this country; it is fiscally sound and responsible in both its cost assumptions and federal budget implications. Federal funding of approximately \$69–\$79 million over the next 10 years will be needed to implement identified goals, such as upgrading the University of Missouri Research Reactor (MURR), the only research facility in this country that provides reactor-produced radionuclides for therapeutic applications. SNM has received several letters of support for the plan from prominent national biomedical organizations, and more may be on the way. SNM wants to promote a unified voice for this plan, which, when implemented, will assure our nation of a stable and secure supply of radionuclides for future generations.

Reports over the past 20 years identify a number of trends, including an increased growth in radionuclide use. Statistics show that annually radiopharmaceuticals are used in more than 16 million diagnostic and therapeutic procedures and 100 million laboratory tests in the United States. Each year nearly 1 in 3 patients who are admitted to a hospital in this country undergo a test or

treatment that depends on radiolabeled compounds, and that number is expected to grow exponentially in coming years.

Reports indicate that the majority of radionuclides used in applications every day are imported on a daily basis, and disruption of their availability threatens to interrupt

tens of thousands of nuclear medicine procedures each day. Those radionuclides required for innovative research are either available only sporadically and in limited quantities or not available at all. New radionuclide production is not being developed for diagnostic and therapeutic uses, as the national radioisotope infrastructure is chronically underfunded at the Department of Energy.

Among its suggestions, the NRPE national program calls for developing the capability to produce large quantities of radionuclides to maintain existing technologies and stimulate future growth in the biomedical sciences. It suggests that medical and industrial users collaborate to assess radionuclide needs and transfer technologies to accelerate applications. It proposes that the transfer of commercially viable radionuclide programs be facilitated to the private sector and an investment be made in research and development to improve radionuclide production, processing, and utilization. To this end, SNM and the National Cancer Institute held a workshop in September 2003 that resulted in the initiation of a Small Business Innovation Research grant targeted at these issues. Seven applications were received that will be reviewed for funding in 2005.



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The NRPE plan calls for the continuous monitoring of radionuclide needs of researchers and clinicians and the establishment of an education program to ensure that the next generation of nuclear and molecular imaging professionals are trained and available to support the nation's critical needs. The plan also asks for upgrading the capability of MURR and other existing facilities that produce radionuclides and stable isotopes.

Briefly, here are the proposal's 5 specific goals, its timeline, and the requested appropriations. In fiscal year 2006, \$6.3 million would be needed for upgrading MURR from 10 to 20 MW and to support the work of a select committee, which will be formed to define the optimal operating characteristics for a cyclotron production facility. The next year, approximately \$29–\$39 million would be used to begin installation of a new cyclotron, which would be completed by 2010.

For fiscal years 2008–2010, \$3 million would be used each year to fund research and development of small-energy cyclotron targets, to research radionuclide production capability, and to pay for operating costs of the new cyclotron. In fiscal years 2010–2015, \$4 million will be used each year for research and development funding for Oak Ridge National Laboratory to upgrade processing hot cells for a stable supply of alpha-emitting radionuclides for therapeutic applications and to produce alpha emitters for therapeutic uses. In fiscal year 2016, approximately \$5 million would fund an isotope separator to produce en-

riched stable isotopes that are required as target material for production of both reactor-produced and cyclotron-produced radionuclides.

Radionuclides are part of the foundation supporting today's applied molecular/nuclear technology. The very duality of purpose of molecular/nuclear medicine—offering both noninvasive diagnostic methodology and a powerful therapeutic modality—drives the exploration and development of new radiopharmaceuticals. Radiopharmaceutical research leads to a better understanding and improved or early diagnosis of human diseases and to the development of effective treatments and the monitoring of the effectiveness of existing ones. For these reasons, SNM is committed to gaining support for this program and to promoting it at the federal level.

Many thanks go to the individuals who served on the NRPE Task Force, including Michael J. Welch, PhD, chair; Richard C. Reba, MD; Barbara Y. Croft, PhD; David Hill, PhD; Robert F. Carretta, MD; Alan R. Ketrting, PhD; Peter T. Kirchner, MD; Edward B. Silberstein, MD; Wynn A. Volkert, PhD; D. Scott Wilbur, PhD; Iain Trevena, PhD; and Roy Brown, PhD. SNM also thanks Martin Brechbiel, PhD, Suresh Srivastava, PhD, and John Pantaleo for their technical contributions and Daniel Sullivan, MD, for his support. Our thanks also go to the leadership of organizations who thoughtfully supported this program of national importance.

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Erratum March 2005 Newsline

The subhead, "Goal: Membership in SNM Will Be Viewed as Essential by All With an Interest in the Field of Nuclear Medicine and Molecular Imaging," was inadvertently omitted in the SNM Leadership Update. A corrected version appears in the Newsline section of the SNM journals Web site at <http://jnm.snmjournals.org/cgi/reprint/46/24N>.