

1S Radiopharmaceutical Dosimetry for Cancer Therapy: From Theory to Practice

Richard L. Wahl and John Sunderland

Wahl and Sunderland introduce this special *JNM* supplement designed as a snapshot in time addressing both the rapid progress and challenges in applying patient-specific radiation dosimetry to guide radiopharmaceutical therapies.

3S Dosimetry for Radiopharmaceutical Therapy: Current Practices and Commercial Resources

Jacek Capala, Stephen A. Graves, Aaron Scott, George Sgouros, Sara St. James, Pat Zanzonico, and Brian E. Zimmerman

Capala and colleagues provide an overview of the state of the art of patient-specific dosimetry for radiopharmaceutical therapy, including current methods and commercially available software and other resources.

12S Tumor Response to Radiopharmaceutical Therapies: The Knowns and the Unknowns

George Sgouros, Yuni K. Dewaraja, Freddy Escorcía, Stephen A. Graves, Thomas A. Hope, Amir Iravani, Neeta Pandit-Taskar, Babak Saboury, Sara St. James, and Pat B. Zanzonico

Sgouros and colleagues elucidate factors affecting the absorbed dose-versus-response relationship for radiopharmaceutical agents, including inflammation- or immune-mediated effects, theranostic imaging, radiobiology, differences in dosimetry methods, pharmacokinetic differences, and tumor hypoxia.

23S Normal-Tissue Tolerance to Radiopharmaceutical Therapies, the Knowns and the Unknowns

Richard L. Wahl, George Sgouros, Amir Iravani, Heather Jacene, Daniel Pryma, Babak Saboury, Jacek Capala, and Stephen A. Graves

Wahl and colleagues look at the knowns and unknowns of dose-toxicity relationships in radiopharmaceutical therapies, including irradiation mechanisms, specific pharmacokinetics, secondary malignancies and side effects, and gaps in understanding, with key recommendations for the future.

36S An International Study of Factors Affecting Variability of Dosimetry Calculations, Part 1: Design and Early Results of the SNMMI Dosimetry Challenge

Carlos Uribe, Avery Peterson, Benjamin Van, Roberto Fedrigo, Jake Carlson, John Sunderland, Eric Frey, and Yuni K. Dewaraja

Uribe and colleagues detail initial results from a ^{177}Lu dosimetry challenge designed to collect data from the global nuclear

medicine community to identify, understand, and quantitatively characterize the consequences of sources of variability in dosimetry.

48S Reimbursement Approaches for Radiopharmaceutical Dosimetry: Current Status and Future Opportunities

Stephen A. Graves, Alexandru Bageac, James R. Crowley, and Denise A.M. Merlino

Graves and colleagues from the SNMMI Molecular Imaging Dosimetry Task Force review rationales and workflows for radiopharmaceutical therapy dosimetry, as well as current and suggested future strategies for reimbursement for dosimetry-related clinical activities.

60S Dosimetry in Clinical Radiopharmaceutical Therapy of Cancer: Practicality Versus Perfection in Current Practice

Neeta Pandit-Taskar, Amir Iravani, Dan Lee, Heather Jacene, Dan Pryma, Thomas Hope, Babak Saboury, Jacek Capala, and Richard L. Wahl

Pandit-Taskar and colleagues review dosimetric approaches in radiopharmaceutical therapy and clinical trials, including the extent of dosimetry use, pros and cons of dosimetry-based versus fixed activity, and limiting factors in current clinical practice.

73S Dosimetry for Radiopharmaceutical Therapy: The European Perspective

Michael Lassmann, Uta Eberlein, Jonathan Gear, Mark Konijnenberg, and Jolanta Kunikowska

Lassmann and colleagues summarize recent efforts in Europe targeting standardization of quantitative imaging and dosimetry and the results of several European research projects on practices regarding radiopharmaceutical therapies.

GUEST EDITORS

Richard L. Wahl, MD
Mallinckrodt Institute of Radiology
St. Louis, Missouri

John Sunderland, PhD
University of Iowa
Iowa City, Iowa

Editor-in-Chief
Johannes Czernin, MD
David Geffen School of Medicine at UCLA
Los Angeles, California

Opinions expressed in the contributions to this supplement are solely those of the authors and do not necessarily reflect those of *The Journal of Nuclear Medicine* or the Society of Nuclear Medicine and Molecular Imaging. The journal, however, invites and welcomes different opinions in order to initiate and stimulate discussion.