

Acknowledgments

This report was prepared by the U. S. Department of Health and Human Services under the general direction of the Office of the Surgeon General.

Richard H. Carmona, M.D., M.P.H., FACS, Surgeon General, U.S. Public Health Service, Office of the Surgeon General, Office of the Secretary, Washington, D.C.

Christina Beato, M.D., Acting Assistant Secretary for Health, Office of the Secretary, Washington, D.C.

Arthur Lawrence, Ph.D., R.Ph., Assistant Surgeon General, U.S. Public Health Service, Deputy Assistant Secretary for Health (Operations), Office of Public Health and Science, Office of the Secretary, Washington, D.C.

Kenneth Moritsugu, M.D., M.P.H., Deputy Surgeon General, U.S. Public Health Service, Office of the Surgeon General, Office of the Secretary, Washington, D.C.

Allan S. Noonan, M.D., M.P.H., CAPT, U.S. Public Health Service, Scientific Editor, Surgeon General's Report, Office of the Surgeon General, Office of the Secretary, Washington, D.C.

Stephen I. Katz, M.D., Ph. D., Director, National Institute of Arthritis and Musculoskeletal and Skin Diseases, National Institutes of Health, Bethesda, Maryland.

The editors of the report were

Joan A. McGowan, Ph.D., Senior Scientific Editor, Surgeon General's Report, Director, Musculoskeletal Diseases Branch, Extramural Program, National Institute of Arthritis and Musculoskeletal and Skin Diseases, National Institutes of Health, Bethesda, Maryland.

Lawrence G. Raisz, M.D., Scientific Editor, Surgeon General's Report, Board of Trustees Distinguished Professor of Medicine, Interim Director, Musculoskeletal Institute, Division of Endocrinology and Metabolism, University of Connecticut Health Center, Farmington, Connecticut.

Allan S. Noonan, M.D., M.P.H., CAPT, U.S. Public Health Service, Scientific Editor, Surgeon General's Report, Office of the Surgeon General, Office of the Secretary, Washington, D.C.

Ann L. Elderkin, P.A., Managing Editor and Project Director, Surgeon General's Report, Health Systems Research, Inc., Washington, D.C.

The scientific writer was

Larry S. Stepnick, M.B.A., Scientific Writer, The Severyn Group, Inc., Ashburn, Virginia.

Coordinating authors were

Deborah T. Gold, Ph.D., Associate Professor, Departments of Psychiatry and Behavioral Sci-

ences, Sociology and Psychology: Social and Health Sciences, Duke University Medical Center, Durham, North Carolina.

Susan L. Greenspan, M.D., Professor of Medicine, University of Pittsburgh, Pittsburgh, Pennsylvania.

Anne Looker, Ph.D., Senior Research Epidemiologist, Health Examination Statistics, National Center for Health Statistics, Centers for Disease Control and Prevention, Hyattsville, Maryland.

L. Joseph Melton, III, M.D., Eisenberg Professor, Department of Health Sciences Research, Mayo Clinic and Foundation, Rochester, Minnesota.

Lynne Wilcox, M.D., M.P.H., CAPT, U.S. Public Health Service, Editor-in-Chief, Preventing Chronic Disease, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, Atlanta, Georgia.

Deborah E. Sellmeyer, M.D., Assistant Professor of Medicine, Director, University of California San Francisco / Mt. Zion Osteoporosis Center, San Francisco, California.

David Reuben, M.D., Professor of Medicine, Division of Geriatrics, David Geffen School of Medicine, University of California at Los Angeles, Los Angeles, California.

Contributing authors were

Laura Bachrach, M.D., Pediatrics Department, Stanford University Medical Center, Stanford, Connecticut.

Douglas Bauer, M.D., Associate Professor of Clinical Medicine, University of California, San Francisco, San Francisco, California.

John P. Bilezikian, M.D., Professor of Medicine and Pharmacology, College of Physicians and Surgeons, New York, New York.

Dennis Black, Ph.D., Professor, Department of Epidemiology and Biostatistics, University of California, San Francisco, San Francisco, California.

Jane Cauley, Dr.P.H., Associate Professor, Department of Epidemiology, University of Pittsburgh, Pittsburgh, Pennsylvania.

Jan A. Christensen, M.S.W., J.D., Manager, Diabetes, Kidney and other Chronic Diseases, Chronic Disease and Injury Control, Michigan Department of Community Health, Lansing, Michigan.

Carolyn Crandall, M.D., F.A.C.P., Associate Professor of Medicine, Iris Cantor-UCLA Women's Health Center, University of California at Los Angeles, David Geffen School of Medicine, Los Angeles, California.

Steven R. Cummings, M.D. University of California, San Francisco, San Francisco, California.

Denise Cyzman, M.S., R.D., Senior Project Coordinator, Health Promotion and Disease Prevention, Osteoporosis, and Other Chronic Conditions, Michigan Public Health Institute, Okemos, Michigan.

Susan Davidson, M.S., R.D., Consultant, Germantown, Maryland.

Bess Dawson-Hughes, M.D., Professor of Medicine, Metabolism Lab, Tufts University, U.S.D.A. Human Research Center on Aging, Boston, Massachusetts.

Deborah A. Galuska, Ph.D., M.P.H., Epidemiologist, Division of Nutrition and Physical Activity, Centers for Disease Control and Prevention, Atlanta, Georgia.

Gail Greendale, M.D., Professor of Medicine and Obstetrics-Gynecology, University of California at Los Angeles, David Geffen School of Medicine, Los Angeles, California.

Robert P. Heaney, M.D., F.A.C.P., F.A.C.N., John A. Creighton University Professor, Professor of Medicine, Department of Medicine, Creighton University, Omaha, Nebraska.

Gregory Heath, D.H.Sc., M.P.H., Division of Nutrition and Physical Activity, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, Atlanta, Georgia.

Ann Hewitt, Ph.D., C.H.E.S., Assistant Director, Master in Healthcare Administration Program, Seton Hall University, Center for Public Service, Mendham, New Jersey.

David P. Hopkins, M.D., M.P.H., Staff Scientist, Health Promotion and Chronic Disease Program, Oregon Department of Human Services, Portland, Oregon.

Anne M. Kenny, M.D., Assistant Professor, University of Connecticut Center on Aging, Farmington, Connecticut.

Sundeep Khosla, M.D., Professor of Medicine, Department of Endocrinology, Mayo Clinic and Foundation, Rochester, Minnesota.

Douglas P. Kiel, M.D., M.P.H., Director of Medical Research, Research and Training Institute, Hebrew Rehabilitation Center for the Aged, Boston, Massachusetts.

Anne Klibanski, M.D., Chief, Neuroendocrine Unit, Massachusetts General Hospital, Neuroendocrine Unit, Boston, Massachusetts.

Nancy E. Lane, M.D., Associate Professor, Division of Rheumatology, University of California at San Francisco, San Francisco, California.

Craig B. Langman, M.D., Isaac A. Abt, MD Professor of Kidney Diseases, Feinberg School of Medicine, Northwestern University, Chicago, IL. Head, Division of Kidney Diseases, Children's Memorial Medical Center, Chicago, Illinois.

Peggy Lassanske, President, Elder Floridians Foundation, Tallahassee, Florida.

Meryl LeBoff, M.D., Director, Endocrine-Hypertension Division, Skeletal Health and Osteoporosis, Brigham and Women's Health, Boston, Massachusetts.

Karen Lim, Acting Executive Director, National Asian Women's Health Organization, San Francisco, California.

Geraldine Mackenzie, Supervisor, New Jersey Department of Health and Senior Services, Older Adult Health and Wellness, Trenton, New Jersey.

Catherine MacLean, M.D., Ph.D., Assistant Professor of Medicine, Division of Rheumatology, University of California at Los Angeles School of Medicine, Los Angeles, California.

John McGrath, Ph.D., Chief, Public Information and Communications Branch, National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, Maryland.

Heather McKay, Ph.D., Associate Professor, School of Human Kinetics, University of British Columbia, Vancouver, British Columbia, Canada.

Paul Miller, M.D., F.A.C.P., Clinical Professor of Medicine, University of Colorado Health Sciences Center, Denver, Colorado. Medical Director, Colorado Center for Bone Research, Lakewood, Colorado.

Heidi D. Nelson, M.D., M.P.H., Investigator and Associate Director, Clinical Prevention Center, Oregon Health Sciences University, Portland, Oregon.

Eric S. Orwoll, M.D., Professor of Medicine, Program Director, General Clinical Research Center, Associate Dean for Clinical Research, Assistant Vice President for Research, Oregon Health and Science University, Portland, Oregon.

Rebecca Payne, M.P.H., Public Health Analyst, Nutrition and Physical Activity Communication Team, Centers for Disease Control and Prevention, Atlanta, Georgia.

Munro Peacock, M.D., Professor of Medicine, General Clinical Research Center, Indiana University Medical Center, Indianapolis, Indiana.

B. Lawrence Riggs, M.D., Distinguished Investigator, May Foundation, Purvis and Roberta Tabor Professor of Medical Research, Mayo Medical School, Division of Endocrinology, Mayo Clinic and Foundation, Rochester, Minnesota.

G. David Roodman, M.D., Ph.D., Professor of Medicine, Division of Hematology/Oncology, School of Medicine, University of Pittsburgh, Pittsburgh, Pennsylvania.

Clifford Rosen, M.D., Chief of Medicine, Maine Center for Osteoporosis Research, St. Joseph Hospital, Bangor, Maine.

Elizabeth Shane, M.D., Professor of Clinical Medicine, College of Physicians and Surgeons, Department of Medicine, Columbia University, New York, New York.

Kathy Shipp, P.T., Ph.D., Assistant Research Professor, Physical Therapy, Community and Family Medicine, Duke University Medical Center, Durham, North Carolina.

Ethel S. Siris, M.D., Madeline C. Stabile Professor of Clinical Medicine, Endocrinology Division, Columbia University and Columbia Presbyterian Medical Center, Harkness Pavilion, New York, New York.

MaryFran Sowers, Ph.D., Professor, Department of Epidemiology, University of Michigan, Ann Arbor, Michigan.

Anna N. Tosteson, Sc.D., Professor, Departments of Medicine and Community and Family Medicine, Dartmouth Medical School, Lebanon, New Hampshire.

Nelson Watts, M.D., Director, Bone Health and Osteoporosis Center, University of Cincinnati, Cincinnati, Ohio.

Connie M. Weaver, Ph.D., Distinguished Professor, Department Head, Foods and Nutrition, Purdue University, West Lafayette, Indiana.

Michael F. White, Consultant, Michael F. White and Associates, Women's Health Council, Association of State and Territorial Directors of Chronic Disease Programs, Alexandria, Virginia.

Michael P. Whyte, M.D., Professor of Medicine, Pediatrics, and Genetics, Bone and Mineral Diseases, Department of Medicine, Barnes-Jewish Hospital at Washington University School of Medicine, St. Louis, Missouri.

Joseph D. Zuckerman, M.D., Chairman, Department of Orthopedic Surgery, Hospital for Joint Diseases, New York, New York.

Reviewers were

Steven A. Abrams, M.D., Professor, Pediatric/Children's Nutrition Research Center, Baylor College of Medicine, Houston, Texas.

Amy Allina, Program and Policy Director, National Women's Health Network, Washington, D.C.

Nell Armstrong, Ph.D., R.N., Program Director, Division of Extramural Activities, National Institute of Nursing Research, National Institutes of Health, Bethesda, Maryland.

David Atkins, M.D., M.P.H., Senior Health Policy Analyst, Center for Practice and

Technology Assessment, Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services, Rockville, Maryland.

John Baron, M.D., M.S., M.Sci., Professor of Medicine and of Community and Family Medicine, Biostatistics and Epidemiology, Dartmouth Medical School, Lebanon, New Hampshire.

Douglas Bauer, M.D., Associate Professor of Clinical Medicine, University of California, San Francisco, San Francisco, California.

L. Tony Beck, Ph.D., Program Officer, Division of Clinical Research, National Center for Research Resources, National Institutes of Health, Bethesda, Maryland.

Michele F. Bellantoni, M.D., Associate Professor of Medicine, Division of Geriatric Medicine and Gerontology, Johns Hopkins University School of Medicine (representing American Geriatrics Society), Baltimore, Maryland.

Francis J. Bonner, Jr., M.D., Psychiatrist, Department of Physical Medicine, Rehabilitation Hospital of South Jersey, Vineland, New Jersey.

Kathryn Brewer, P.T., G.C.S., M.Ed., Health Educator and Consultant, Arizona Osteoporosis Coalition, Phoenix, Arizona

David Brown, Ph.D., Senior Behavioral Scientist, Division of Nutrition and Physical Activity, Physical Activity and Health Branch, National Center on Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, Atlanta, Georgia.

Lenore Buckley, M.D., M.P.H., Professor, Division of Rheumatology, Medical College of Virginia, Richmond, Virginia.

Mona S. Calvo, Ph.D., Expert Regulatory Review Scientist, Office of Applied Research and Safety Assessment, Center for Food Safety and Applied Nutrition, Food and Drug Administration, Laurel, Maryland.

Thomas G. Carskadon, Ph.D., Professor of Psychology, Mississippi State University, Mississippi State, Mississippi.

Mary Concannon, M.A., Osteoporosis Prevention Coordinator, Maryland Department of Health and Mental Hygiene, Baltimore, Maryland.

Cyrus Cooper, M.A., D.M., F.R.C.P., Professor, MRC Environmental Epidemiology Unit, Southampton General Hospital, Shirley, Southampton, United Kingdom.

Judith A. Cranford, Executive Director, National Osteoporosis Foundation, Washington, D.C.

Ann Cranney, M.D., M.Sc., Assistant Professor, Division of Rheumatology, Queen's University, Kingston, Ontario, Canada.

William H. Dietz, M.D., Ph.D., Director, Division of Nutrition and Physical Activity, Division of Nutrition and Physical Activity, Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, Atlanta, Georgia.

Marc K. Drezner, M.D., Professor of Medicine, Endocrinology Section, University of Wisconsin, Madison, Wisconsin.

Michael Econs, M.D., Professor of Medicine, School of Medicine, Indiana University Medical Center, Indianapolis, Indiana.

Kristine Ensrud, M.D., M.P.H., Associate Professor, Division of Epidemiology, University of Minnesota, School of Public Health, Minneapolis, Minnesota.

Martin Erlichman, M.S., Senior Health Science Analyst, Center for Practice and Technology Assessment, Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services, Rockville, Maryland.

Bruce Ettinger, M.D., Senior Investigator, Research Division, Kaiser Permanente, San Francisco, California.

Caswell A. Evans, D.M.D., National Institute of Dental and Craniofacial Research, Bethesda, Maryland.

Murray J. Favus, M.D., University of Chicago, Chicago, Illinois.

Nancy Libby Fisher, Coordinator, Disease Prevention and Control, Office of Women's Health, Rhode Island Department of Health, Providence, Rhode Island.

Judith E. Fradkin, M.D., Director, Division of Diabetes Endocrinology and Metabolism, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, Maryland.

Harry K. Genant, M.D., Professor Emeritus of Radiology, Orthopaedic Surgery, Medicine, and Epidemiology, University of California San Francisco, San Francisco, California.

Lou Glasse, M.S.W., President Emeritus, Older Women's League, Poughkeepsie, New York.

Joan Goldberg, Executive Director, American Society for Bone and Mineral Research, Washington, D.C.

Frank R. Greer, M.D., Professor, Pediatrics/Nutritional Sciences, American Academy of Pediatrics, Meriter Hospital, Perinatal Center, Madison, Wisconsin.

Jack Guralnik, M.D., Ph.D., Chief, Epidemiology and Demography Office, National Institute on Aging, National Institutes of Health, Gateway Boulevard, Bethesda, Maryland.

Ralph Hale, M.D., Executive Vice President, American College of Obstetricians and Gynecologists, Washington, D.C.

R. Scott Hanson, M.D., M.P.H., Past President, Rhode Island Public Health Association, Narragansett, Rhode Island.

Olof Johnell, M.D., Professor, Department of Orthopaedics, University General Hospital, Malmo, Sweden.

Clifford Johnson, M.S.P.H., Director, National Health and Nutrition Examination Survey, National Center for Health Statistics, Centers for Disease Control and Prevention, Hyattsville, Maryland.

C. Conrad Johnston, Jr., M.D., Distinguished Professor, School of Medicine, Indiana University, Indianapolis, Indiana.

John Kanis, M.D., Professor, Centre for Metabolic Bone Diseases, University of Sheffield Medical School, Sheffield, S. Yorkshire, United Kingdom.

Theresa Kehoe, M.D., Medical Officer, Food and Drug Administration, Parklawn Building, Rockville, Maryland.

Jennifer Kelsey, Ph.D., Professor, University of Massachusetts Medical School, Clinton, Connecticut.

Jane E. Kerstetter, Ph.D., R.D., Associate Professor, School of Allied Health, University of Connecticut, Stafford Springs, Connecticut.

Patricia A. Kipperman, Omaha, Nebraska.

John H. Klippel, M.D., Medical Director, Arthritis Foundation, Atlanta, Georgia.

Joan M. Lappe, Ph.D., R.N., Associate Professor, Creighton Osteoporosis Research Center, Creighton University, Omaha, Nebraska.

Angelo Licata, M.D., Ph.D., Director of Research, Center for Osteoporosis and Metabolic Bone Disease, Cleveland Clinic Foundation, Cleveland, Ohio.

Robert Lindsay, M.D., Ph.D., Chief of Internal Medicine, Regional Bone Center, Helen Hayes Hospital, West Haverstraw, New York.

Jean L. Lloyd, M.S., R.D., Nutritionist, Office of Community Based Services, U.S. Administration on Aging, U.S. Department of Health and Human Services, Washington, D.C.

Jay Magaziner, Ph.D., M.S., Professor and Director, Division of Gerontology, Epidemiology and Preventive Medicine, University of Maryland, Baltimore, Maryland.

Deborah R. Maiese, Director, Maternal and Child Health Bureau, Office of Women's Health, Health Resources and Services Administration, Rockville, Maryland.

Robert Marcus, M.D., Professor Emeritus, Stanford University, Stanford, California. Medical Advisor, USMD Endocrinology, Eli Lilly, Indianapolis, Indiana.

Ronald Margolis, Ph.D., Senior Advisor for Molecular Endocrinology, Division of Diabetes, Endocrinology and Metabolism, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, Maryland.

Joan C. Marini, M.D., Ph.D., Chief, Heritable Disorders Branch, National Institute of Child Health and Human Development, Bethesda, Maryland.

Betsy McClung, R.N., Associate Director, Oregon Osteoporosis Center, Portland, Oregon.

Michael McClung, M.D., F.A.C.E., Director, Oregon Osteoporosis Center, Portland, Oregon.

Daniel McDonald, M.D., Scientific Review Administrator, Center for Scientific Review, National Institutes of Health, Bethesda, Maryland.

Barbara Miller, Ph.D., Category Manager, Professional and Scientific Relations, Procter and Gamble Pharmaceuticals, Mason, Ohio.

Gregory Miller, Ph.D., M.A.C.N., Senior Vice President of Nutrition and Scientific Affairs, National Dairy Council, Rosemont, Illinois.

Ron Nelson, P.A.-C., President/CEO, Health Services Associates, Inc., Fremont, Michigan.

Eric S. Orwoll, M.D., Professor of Medicine, Program Director, General Clinical Research Center, Associate Dean for Clinical Research, Assistant Vice President for Research, Oregon Health and Science University, Portland, Oregon.

Susan Ott, M.D., Associate Professor, Department of Medicine, University of Washington Medical Center, Seattle, Washington.

Susana Perry, M.S., Health Programs Coordinator, Office of Women's Health, Food and Drug Administration, Rockville, Maryland.

Steven Petak, M.D., J.D., F.A.C.E., representing American Association of Clinical Endocrinologists, Houston, Texas.

Sandra C. Raymond, Executive Director, Lupus Foundation of America, Inc., Washington, D.C.

Robert R. Recker, M.D., Director, Osteoporosis Research Center, Creighton University, Omaha, Nebraska.

Trish Reynolds, R.N., M.S., Education Manager/Assistant Project Director, National Institutes of Health Osteoporosis and Related Bone Diseases ~ National Resource Center, Washington, D.C.

Elena Rios, M.D., President, National Hispanic Medical Association, Washington, D.C.

Helena W. Rodbard, M.D., Past President, American Association of Clinical Endocrinologists, Rockville, Maryland.

William Sacks, M.D., Ph.D., Medical Officer, Center for Devices and Radiological Health, Office of Device Evaluation, Food and Drug Administration, Rockville, Maryland.

Paul Scherr, Ph.D., D.Sc., Epidemiologist, Division of Adult and Community Health, Emerging Investigations and Analytic Methods Branch, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, Atlanta, Georgia.

Mary Jean Schumann, Director, Practice and Policy, American Nurses Association, Washington, D.C.

Heller An Shapiro, Executive Director, Osteogenesis Imperfecta Foundation, Gaithersburg, Maryland.

Harriet R. Shapiro, R.N., M.A., Director, Patient and Professional Education, National Osteoporosis Foundation, Washington, D.C.

Frederick R. Singer, M.D., Chairman, Paget Foundation Board of Directors, John Wayne Cancer Institute, Santa Monica, California.

Christine Snow, Ph.D., F.A.C.S.M., Director, Bone Research Laboratory, Professor, Exercise and Sport Science, College of Health and Human Sciences, Oregon State University, Corvallis, Oregon.

Christine Spain, M.A., Director, Research, Planning, and Special Projects, President's Council on Physical Fitness and Sports, Washington, D.C.

Barry Stein, M.D., Surgeon-in-Chief, Urology, Rhode Island Hospital, Providence, Rhode Island.

Susan S. Swift, D.P.A., President, Susan S. Swift, Ltd., New York, New York.

J. Scott Toder, M.D., Physician, Johnston, Rhode Island.

Mehrdad Tondravi, Ph.D., Program Director, Division of Diabetes, Endocrinology and Metabolic Diseases, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, Maryland.

Charlene Waldman, Executive Director, The Paget Foundation, New York, New York.

Michael F. White, Principal, Michael F. White and Associates, Women's Health Council, Association of State and Territorial Directors of Chronic Disease Programs, Alexandria, Virginia.

Paul J. Wiesner, M.D., District Health Director, Dekalb County Board of Health, Decatur, Georgia.

T. Franklin Williams, M.D., Professor of Medicine Emeritus, General Medicine and Geriatrics Unit, University of Rochester School of Medicine and Dentistry, Rochester, New York.

Karen Winer, M.D., Fellow, Center for Research for Mothers and Children, Endocrinology, Nutrition, and Growth Branch, National Institute of Child Health and Human Development, Bethesda, Maryland.

Betty H. Wiser, Ed.D., M.S., Director of Older Adult Health Branch, Division of Public Health, North Carolina Department of Health and Human Services, Raleigh, North Carolina.

Susan Wood, Director, Office of Women's Health, Food and Drug Administration, Rockville, Maryland.

Adeline M. Yerkes, R.N., M.P.H., Chief, Chronic Disease, Oklahoma State Department of Health, Oklahoma City, Oklahoma.

Surgeon General Workshop participants were

Amy Allina, Program and Policy Director, National Women's Health Network, Washington, D.C.

Nell Armstrong, Ph.D., R.N., Program Director, Division of Extramural Activities, National Institute of Nursing Research, National Institutes of Health, Bethesda, Maryland.

David Atkins, M.D., M.P.H., Senior Health Policy Analyst, Center for Practice and Technology Assessment, Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services, Rockville, Maryland.

Roberta Biegel, Director of Government Relations, Society for Women's Health Research, Washington, D.C.

Dennis Black, Ph.D., Professor, Department of Epidemiology and Biostatistics, University of California San Francisco, San Francisco, California.

Henry G. Bone, III, M.D., Director, Michigan Bone and Mineral Clinic, Detroit, Michigan.

Joyce M. Briscoe, Cavarocchi Ruscio Dennis Associates, LLC, Washington, D.C.

David Buchner, M.D., M.P.H., Chief, Physical Activity and Health Branch, Division of Nutrition and Physical Activity, Centers for Disease Control and Prevention, Department of Health and Human Services, Atlanta, Georgia.

Mona S. Calvo, Ph.D., Expert Regulatory Review Scientist, Office of Applied Research and Safety Assessment, Center for Food Safety and Applied Nutrition, Food and Drug Administration, Laurel, Maryland.

Thomas G. Carskadon, Ph.D., Professor of Psychology, Mississippi State University, Mississippi State, Mississippi.

Jane Cauley, Dr.P.H., Associate Professor, Department of Epidemiology, University of Pittsburgh, Pittsburgh, Pennsylvania.

Nicholas G. Cavarocchi, Cavorocchi Ruscio Dennis Associates, LLC, Washington, D.C.

David A. Chambers, Ph.D., M.Sc., Program Officer, Dissemination and Implementation Research Program, Services Research and Clinical Epidemiology Branch, National Institute of Mental Health, National Institutes of Health, Bethesda, Maryland.

Katherine Moy Chin, R.D., L.D., Commissioner, State of Maryland Governor's Commission on Asian Pacific American Affairs, Baltimore, Maryland.

Wojtek Chodzko-Zajko, Ph.D., Professor and Department Chair, Department of Kinesiology, University of Illinois, Urbana, Illinois.

Kathleen Cody, Executive Director, Foundation for Osteoporosis Research, and Education, Oakland, California.

Rosalyn Correa-de-Araujo, M.D., Health Scientist Administrator, Agency for Healthcare Research and Quality, Rockville, Maryland.

Judith Cranford, Executive Director, National Osteoporosis Foundation, Washington, D.C.

Denise Cyzman, Senior Project Coordinator, Health Promotion and Disease Prevention, Osteoporosis and Other Chronic Conditions, Michigan Public Health Institute, Okemos, Michigan.

Susan Davidson, M.S., R.D., Consultant, Germantown, Maryland.

Bess Dawson-Hughes, M.D., Professor of Medicine, Metabolism Lab, Tufts University, U.S. Department of Agriculture, Human Research Center on Aging, Boston, Massachusetts.

Susan Dentzer, Health Correspondent, NewsHour with Jim Lehrer, Arlington, Virginia.

Barbara DeVinney, Ph.D., AAAS Science Policy Fellow, Office of Behavioral and Social Sciences Research, Office of the Director, National Institutes of Health, Bethesda, Maryland.

Ann L. Elderkin, P.A., Managing Editor and Project Director, Surgeon General's Report, Health Systems Research, Inc., Washington, D.C.

Martin Erlichman, M.S., Senior Health Science Analyst, Center for Practice and Technology Assessment, Agency for Healthcare Research

and Quality, U.S. Department of Health and Human Services, Rockville, Maryland.

Christine M. Everett, M.P.H., Special Assistant to the Acting Director, Food and Drug Administration, Rockville, Maryland.

Suzanne Feetham, Ph.D., R.N., F.A.A.N., Senior Advisor, Office of Director, Bureau of Primary Health Care, Health Resources and Services Administration, Bethesda, Maryland.

Lawrence Fields, M.D., Senior Executive Advisor to the Assistant Secretary for Health, Department of Health and Human Services, Washington, D.C.

Michael Fleischman, Intern, President's Council on Physical Fitness and Sports, Washington, D.C.

Susan M. Friedman, Deputy Director, Government Relations, American Osteopathic Association, Washington, D.C.

Deborah A. Galuska, Ph.D., M.P.H., Epidemiologist, Division of Nutrition and Physical Activity, Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, Atlanta, Georgia.

Jean Gearing, Ph.D., M.P.H., Acting Osteoporosis Program Manager, Chronic Disease Prevention and Health Promotion Branch, Georgia Division of Public Health, Atlanta, Georgia.

Deborah T. Gold, Ph.D., Associate Professor, Departments of Psychiatry and Behavioral Sciences, Sociology, and Psychology: Social and Health Sciences, Duke University Medical Center, Durham, North Carolina.

Joan Goldberg, Executive Director, American Society for Bone and Mineral Research, Washington, D.C.

Jean Gonzalez, Lovettsville, Virginia.

Julie Gonzalez, Lovettsville, Virginia.

Christine W. Gould, Director of Health, YWCA of the USA, Washington, D.C.

Amy Greene, Director, Prevention Policy, Adolescent Health, Association of State and Territorial, Health Officials, Washington, D.C.

Susan L. Greenspan, M.D., Professor of Medicine, University of Pittsburgh, Kaufmann Medical Building, Pittsburgh, Pennsylvania.

Betty Lee Hawks, Special Assistant to the Director, Office of Minority Health, Office of Public Health and Science, U.S. Department of Health and Human Services, Rockwall II, Rockville, Maryland.

Leanne Jerome, Writer, Office of the Surgeon General, Department of Health and Human Services, Rockville, Maryland.

Sara Johnson, Ph.D., Director, Health Behavior Change Programs, Pro-Change Behavior Systems, Inc., West Kingston, Rhode Island.

Linda Johnson, Brentwood, Maryland.

Wanda K. Jones, Dr.P.H., Deputy Assistant Secretary and Director of the Office of Women's Health, Office of the Secretary, Office of Public Health and Science, Department of Health and Human Services, Washington, D.C.

Jason Jurkowski, Fellow, Office of the Surgeon General, Department of Health and Human Services, Rockville, Maryland.

Stephen I. Katz, M.D., Ph.D., Director, National Institute of Arthritis and Musculoskeletal and Skin Diseases, National Institutes of Health, Bethesda, Maryland.

Douglas P. Kiel, M.D., M.P.H., Director of Medical Research, Research and Training Institute, Hebrew Rehabilitation Center for the Aged, Boston, Massachusetts.

Raynard S. Kington, M.D., Ph.D., Associate Director, Office of the Director, Office of Behavioral and Social Sciences Research, National Institutes of Health, Department of Health and Human Services, Bethesda, Maryland.

Richard L. Kravitz, M.D., M.S.P.H., Professor of Medicine, Center for Health Services Research in Primary Care, University of California, Davis Medical Center, Sacramento, California.

Peggy Lassanske, President, Elder Floridians Foundation, Tallahassee, Florida.

Marie-Michele Leger, M.P.H., P.A.-C., Director, Professional Education, American Academy of Physician Assistants, Alexandria, Virginia.

Jewel F. Lewis, Retired Chief Judge and Chair, Board of Contract Appeals, Department of Agriculture, Associate General Counsel and General Counsel of Service Corps of Retired Executives, Washington, D.C.

Karen Lim, Acting Executive Director, National Asian Women's Health Organization, San Francisco, California.

Anita M. Linde, Senior Program Analyst, Office of the Director, National Institute of Arthritis and Musculoskeletal and Skin Diseases, Bethesda, Maryland.

Jean Lloyd, M.S., R.D., National Nutritionist, Office of Community Based Services, U.S. Administration on Aging, U.S. Department of Health and Human Services, Washington, D.C.

Anne Looker, Ph.D., Senior Research Epidemiologist, Health Examination Statistics, National Center for Health Statistics, Centers for Disease Control and Prevention, Hyattsville, Maryland.

Robert Lorigan, Orient, Maine.

Annie Lorigan, Orient, Maine.

Kathryn R. Mahaffey, Ph.D., Director, Office of Science Coordination and Policy, Division of Exposure Assessment, Environmental Protection Agency, Washington, D.C.

Edward W. Maibach, M.P.H., Ph.D., Worldwide Director of Social Marketing, Porter Novelli, Washington, D.C.

Deborah Maiese, former Director, Maternal and Child Health Bureau, Office of Women's Health, Health Resources and Services Administration, Rockville, Maryland.

Jean Mandeville, Hopkins, Minnesota.

Ronald Margolis, Ph.D., Senior Advisor for Molecular Endocrinology, Division of Diabetes, Endocrinology and Metabolism, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, Maryland.

Joan C. Marini, M.D., Ph.D., Chief, Heritable Disorders Branch, National Institute of Child Health and Human Development, Bethesda, Maryland.

Saralyn Mark, M.D., Senior Medical Advisor, Office on Women's Health, Office of Public Health and Science, National Aeronautics and Space Administration, Department of Health and Human Services, Washington, D.C.

Jeff Martin, Office of the Surgeon General, Department of Health and Human Services, Rockville, Maryland.

Joan A. McGowan, Ph.D., Senior Scientific Editor, Surgeon General's Report, Director, Musculoskeletal Diseases Branch, Extramural Program, National Institute of Arthritis and Musculoskeletal and Skin Diseases, National Institutes of Health, Bethesda, Maryland.

John McGrath, Ph.D., Chief, Public Information and Communications Branch, National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, Maryland.

Taya McMillan, Intern, Office on Women's Health, Office of Public Health and Science, Department of Health and Human Services, Washington, D.C.

L. Joseph Melton, III, M.D., Eisenberg Professor, Department of Health Sciences Research, Mayo Clinic and Foundation, Rochester, Minnesota.

Kenneth P. Moritsugu, M.D., M.P.H., Deputy Surgeon General of the United States, Office of the Surgeon General, Department of Health and Human Services, Rockville, Maryland.

Miriam Nelson, Ph.D., Director, Friedman School of Nutrition Science and Policy, Center for Physical Activity and Nutrition, Tufts University, Boston, Massachusetts.

Debra Nichols, M.D., Public Health Advisor, Office of Disease Prevention and Health Promotion, Office of Public Health and Science, Department of Health and Human Resources, Washington, D.C.

Allan S. Noonan, M.D., M.P.H., CAPT, U.S. Public Health Service, Scientific Editor, Surgeon General's Report, Office of the Surgeon General, Office of the Secretary, Washington, D.C.

Eric S. Orwoll, M.D., Professor of Medicine, Program Director, General Clinical Research Center, Associate Dean for Clinical Research, Assistant Vice President for Research, Oregon Health and Science University, Portland, Oregon.

Lucille Norville Perez, M.D., Past President, National Medical Association, Bethesda, Maryland.

Diana Pethtel, Washington, D.C.

Robert A. Phillips, Ph.D., Chief, Radiological Devices Branch, Center for Devices and Radiological Health, Office of Device Evaluation, Food and Drug Administration, Rockville, Maryland.

Vivian W. Pinn, M.D., Associate Director for Research on Women's Health, Office of the Director, National Institutes of Health, Bethesda, Maryland.

Geraldine B. Pollen, M.A., Research Activities Coordinator, National Institute of Arthritis and

Musculoskeletal and Skin Diseases, Extramural Program, National Institutes of Health, One Democracy Plaza, Bethesda, Maryland.

Lawrence G. Raisz, M.D., Scientific Editor, Board of Trustees Distinguished Professor of Medicine, Interim Director, Musculoskeletal Institute, Division of Endocrinology and Metabolism, University of Connecticut Health Center, Farmington, Connecticut.

Claudia Reid Ravin, C.N.M., M.S.N., Associate Director, Women's Health Programs, Association of Women's Health, Obstetric, and Neonatal Nurses, Washington, D.C.

B. Lawrence Riggs, M.D., Distinguished Investigator, Mayo Foundation, Purvis and Roberta Tabor Professor of Medical Research, Mayo Medical School, Division of Endocrinology, Mayo Clinic and Foundation, Rochester, Minnesota.

Edward J. Roccella, Ph.D., M.P.H., Coordinator, National High Blood Pressure Education Program, Office of Prevention, Education and Control, National Heart, Lung and Blood Institute, National Institutes of Health, Bethesda, Maryland.

Clifford Rosen, M.D., Chief of Medicine, Maine Center for Osteoporosis Research, St. Joseph Hospital, Bangor, Maine.

Bruce S. Schneider, M.D., Medical Officer, Division of Metabolic and Endocrine Drug Products, Center for Drug Evaluation and Research, Food and Drug Administration, Rockville, Maryland.

Jean Scott, Dr.P.H., R.N., Senior Epidemiologist, Quality Measurement & Health

Assessment Group, Centers for Medicare and Medicaid Services, Department of Health and Human Services, Baltimore, Maryland.

Jay R. Shapiro, M.D., Director, Osteogenesis Imperfecta Clinic, Kennedy Krieger Institute, Baltimore, Maryland.

Heller An Shapiro, Executive Director, Osteogenesis Imperfecta Foundation, Gaithersburg, Maryland.

Sherry Sherman, Ph.D., Director, Clinical Endocrinology and Osteoporosis Research, National Institute on Aging, National Institutes of Health, Bethesda, Maryland.

Kathy Shipp, P.T., Ph.D., Assistant Research Professor, Physical Therapy, Community and Family Medicine, Duke University Medical Center, Durham, North Carolina.

Ethel S. Siris, M.D., Madeline C. Stabile Professor of Clinical Medicine, Endocrinology Division, Columbia University and Columbia Presbyterian Medical Center, New York, New York.

Eve Slater, M.D., Assistant Secretary for Health, Department of Health and Human Services, Washington, D.C.

Christine Snow, Ph.D., F.A.C.S.M., Director, Bone Research Laboratory, Professor, Exercise and Sport Science, College of Health and Human Sciences, Oregon State University, Corvallis, Oregon.

Christine Spain, M.A., Director, Research, Planning, and Special Projects, President's Council on Physical Fitness and Sports, Washington, D.C.

Larry Stepnick, M.B.A., Consultant, The Sevryn Group, Inc., Ashburn, Virginia.

Jeannie Suarez-Reyes, M.P.H., Project Director, Center for Consumers, National Alliance for Hispanic Health, Washington, D.C.

William W. Tipton, Jr., M.D., Executive Vice President, American Academy of Orthopaedic Surgeons, Rosemount, Illinois.

Mehrdad Tondravi, M.D., Program Director, Division of Diabetes, Endocrinology and Metabolic Diseases, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, Maryland.

Laura Tosi, M.D., Division Chief, Orthopaedic Surgery and Sports Medicine, Children's National Medical Center, Washington, D.C.

Anna N. Tosteson, Sc.D., Professor, Departments of Medicine and Community and Family Medicine, Dartmouth Medical School, Lebanon, New Hampshire.

Wulf H. Utian, M.D., Ph.D., Executive Director, North American Menopause Society, Mayfield Heights, Ohio.

Charlene Waldman, Executive Director, The Paget Foundation, New York, New York.

Nelson Watts, M.D., Director, Bone Health and Osteoporosis Center, University of Cincinnati, Cincinnati, Ohio.

Connie M. Weaver, Ph.D., Distinguished Professor, Department Head, Foods and Nutrition, Purdue University, West Lafayette, Indiana.

Michael F. White, Consultant, Michael F. White and Associates, Women's Health Council, Association of State and Territorial Directors of Chronic Disease Programs, Alexandria, Virginia.

Susan Whittier, M.H.A., Director, National Institutes for Health Osteoporosis and Related Bone Diseases ~ National Resource Center, Washington, D.C.

Michael P. Whyte, M.D., Professor of Medicine, Pediatrics, and Genetics, Bone and Mineral Diseases, Department of Medicine, Barnes-Jewish Hospital at Washington University School of Medicine, St. Louis, Missouri.

Lynne Wilcox, M.D., M.P.H., CAPT, U.S. Public Health Service, Editor-in-Chief, Preventing Chronic Disease, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, Atlanta, Georgia.

Betty H. Wiser, Ed.D., Director of Older Adult Health Branch, Division of Public Health, North Carolina Department of Health and Human Services, Raleigh, North Carolina.

Susan Wood, Director, Office of Women's Health, Food and Drug Administration, Rockville, Maryland.

***Surgeon General's Interagency Work Group
on Osteoporosis and Bone Health***

Nell Armstrong, Ph.D., R.N., Program Director, Division of Extramural Activities, National Institute of Nursing Research, National Institutes of Health, Bethesda, Maryland.

William H. Dietz, M.D., Ph.D., Director, Division of Nutrition and Physical Activity, Division of Nutrition and Physical Activity, Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, Atlanta, Georgia.

Sherri A. Clark, Aging Services Program Specialist, Administration on Aging, Washington, D.C.

Agnes Donahue, Advisor to Director, Office of Intergovernmental Affairs, Department of Health & Human Services, Washington, D.C.

Ann L. Elderkin, P.A., Managing Editor and Project Director, Surgeon General's Report, Health Systems Research, Inc., Washington, D.C.

Martin N. Erlichman, M.S., Senior Health Science Analyst, Vice-Chair International Network of Agencies for Health Technology Assessment, Center for Practice and Technology Assessment, Agency for Healthcare Research and Quality, Rockville, Maryland.

MAJ Rachel Evans, Ph.D., R.P.T, Director, Bone Health Research Program, U.S. Army Research Institute of Environmental Medicine, Military Performance Division, Natick, Massachusetts.

Christine M. Everett, M.P.H., Special Assistant to the Acting Director, Food and Drug Administration, Rockville, Maryland.

Deborah A. Galuska, Ph.D., M.P.H, Epidemiologist, Division of Nutrition and

Physical Activity Centers for Disease Control and Prevention, Atlanta, Georgia.

Melissa Johnson, M.S., Executive Director, President's Council on Physical Fitness and Sports, Washington, D.C.

Annette Kirshner, PhD, Health Science Administrator, National Institute of Environmental Health Sciences, Division of Extramural Research and Training, Research Triangle Park, North Carolina.

Anita Linde, Senior Program Analyst, Office of the Director, National Institute of Arthritis and Musculoskeletal and Skin Diseases, Bethesda, Maryland.

Jean Lloyd, M.S., R.D., Nutritionist, Center for Community Based Services, U.S. Administration on Aging, Washington, D.C.

Anne Looker, Ph.D., Senior Research Epidemiologist, National Center for Health Statistics, Centers for Disease Control and Prevention, Hyattsville Maryland.

Sabrina Matoff, Acting Director, Office of Women's Health, Maternal and Child Health Bureau, Health Resources and Services Administration, Rockville, Maryland.

Ronald Margolis, Ph.D., Senior Advisor for Molecular Endocrinology, Division of Diabetes, Endocrinology, and Metabolism, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, Maryland.

Saralyn Mark, M.D., Senior Medical Advisor, NASA & Office of Women's Health,

Department of Health & Human Services, Washington, D.C.

Joan A. McGowan, Ph.D., Senior Scientific Editor, Surgeon General's Report, Director, Musculoskeletal Diseases Branch, Extramural Program, National Institute of Arthritis and Musculoskeletal and Skin Diseases, National Institutes of Health, Bethesda, Maryland.

Debra Nichols, M.D., Office of Disease Prevention and Health Promotion, Department of Health and Human Services, Washington, D.C.

Allan S. Noonan, M.D., M.P.H., CAPT, U.S. Public Health Service, Scientific Editor, Surgeon General's Report, Office of the Surgeon General, Office of the Secretary, Washington, D.C.

Susana Perry, M.S., Health Programs Coordinator, Office of Women's Health, Food and Drug Administration, Rockville, Maryland.

Jean Scott, Dr.P.H., R.N., Senior Epidemiologist, Quality Measurement & Health Assessment Group, Centers for Medicare and Medicaid Services, Department of Health and Human Services, Baltimore, Maryland.

Sherry Sherman, Ph.D., Director, Clinical Endocrinology and Osteoporosis Research, National Institute on Aging, National Institutes of Health, Bethesda, Maryland.

Christine Spain, M.A., Director, Research, Planning, and Special Projects, President's Council on Physical Fitness and Sports, Washington, D.C.

Maxine E. Turnipseed, M.B.A., Insurance Analyst, Partnership Development, Centers for Medicare and Medicaid Services, Baltimore, Maryland.

Valerie A. Welsh, Senior Health Policy Analyst and Evaluation Officer, Office of Minority Health, OS/DHHS, Rockville, Maryland.

Judith Wilson, M.P.H., R.D., Director, Nutrition Services, U.S. Department of Agriculture, Washington, D.C.

Susan Wood, Director, Office of Women's Health, Food and Drug Administration, Rockville, Maryland.

Elizabeth Yetley, Ph.D., Lead Scientist for Nutrition, Food and Drug Administration, College Park, Maryland.