

INDUSTRIAL HEALTH

Editors-in-Chief

Yasuo TOYOSAWA *Director-General, National Institute of Occupational Safety and Health, Kiyose, Japan (JNIOSH)*

Shigeki KODA *Deputy Director-General, National Institute of Occupational Safety and Health, Kawasaki, JNIOSH*

Deputy Editor

Masaya TAKAHASHI *Director, Occupational Epidemiology Research Group (RG), JNIOSH*

Honorary Editors

Shigeji KOSHI *Former Director-General, National Institute of Industrial Health, Kawasaki, Japan (NIIH)*

Shunichi ARAKI *Former President, JNIOSH, and Former President & Director-General, NIIH*

Yoshiharu AIZAWA *Professor Emeritus, Kitasato University School of Medicine, Tokyo, Japan*

Torbjörn ÅKERSTEDT *Professor, University of Stockholm, and Karolinska Institute, Stockholm, Sweden*

Heihachiro ARITO *Technical Advisor, The Association, of Industrial Health, Japan, Tokyo, Japan*

Thomas E. BERNARD *Professor, University of South Florida, Tampa, USA*

Marilyn A. FINGERHUT *Consultant, National Institute for Occupational Safety and Health (NIOSH), Washington, D.C., USA*

Renato GILIOLI *Director, ISPEL/ICP Consortium for WHO Collaborating Centre in Occupational Health, Clinica del Lavoro "Luigi Devoto", Milan, Italy*

Mikko HÄRMÄ *Professor, Finnish Institute of Occupational Health, Helsinki, Finland*

Yasuaki ARAKAWA *Ex-President, Japan Society for Biomedical Research on Trace Elements, Tokyo, Japan*

Sin Eng CHIA *Director, WHO Collaborating Center, National University of Singapore, Singapore*

Kaori FUJISHIRO *Senior Epidemiologist, Division of Surveillance, Hazard Evaluation, and Field Studies, NIOSH, Cincinnati, USA*

Naomi HISANAGA *Professor, Aichi Gakusen University, Okazaki, Japan*

Takeshi HONMA *Technical Advisor, Training Institute, Japan Association for Working Environment Measurement, Tokyo, Japan*

Hajime HORI *Professor, University of Occupational and Environmental Health, Kitakyushu, Japan*

Gaku ICHIHARA *Professor, Tokyo University of Science, Noda, Japan*

Seiichiro KANNO *Former Director, Work Environment RG, JNIOSH*

Norito KAWAKAMI *Professor, Graduate School of Medicine, University of Tokyo, Tokyo, Japan*

Yangho KIM *Professor, Ulsan University Hospital, Ulsan, Korea*

Sohei YAMAMOTO *Former Director-General, NIIH*

Yasutaka OGAWA *Former President, JNIOSH*

Haruhiko SAKURAI *Former Director-General, NIIH*

Advisory Editors

Ingvar HOLMÉR *Former Professor, Lund Technical University, Lund, Sweden*

Sergio IAVICOLI *Director, Dpt. Occupational Medicine, National Insurance for Work Accidents and Occupational Diseases, Rome, Italy*

Masayuki IKEDA *Professor Emeritus, Kyoto University, Kyoto, Japan*

Toru ITANI *Advisory Researcher, The Ohara Memorial Institute for Science of Labour, Tokyo, Japan*

Seong-Kyu KANG *Professor, Gachon University Gil Medical Center, Incheon, Korea*

Kaye H. KILBURN *Former Professor, University of Southern California, Los Angeles, USA*

Kazutaka KOGI *Advisory Researcher, The Ohara Memorial Institute for Science of Labour, Tokyo, Japan*

Philip J. LANDRIGAN *Dean for Global Health, Icahn School of Medicine at Mount Sinai, New York, USA*

Editors

Reiko KISHI *Professor, Hokkaido University Center for Environmental and Health Science, Sapporo, Japan*

Fumio KOBAYASHI *Professor Emeritus, Aichi Medical University School of Medicine, Aichi, Japan*

Akio KOIZUMI *Professor, Graduate School of Medicine, Kyoto University, Kyoto, Japan*

Yukinori KUSAKA *Professor, University of Fukui School of Medicine, Eiheiji-cho, Japan*

Peter A. LEGGAT *Professor, James Cook University, Townsville, Australia*

Roberto LUCCHINI *Professor, University of Brescia, Brescia, Italy*

Akinori NAKATA *Professor, International University of Health and Welfare, Tokyo, Japan*

Rusli Bin NORDIN *Professor, Monash University, Johor, Malaysia*

Jun OJIMA *Senior Researcher, Work Environment RG, JNIOSH*

Tsutomu OKUNO *Former Director, Human Engineering & Risk Management RG, JNIOSH*

Teruhito OTSUKA *Senior Researcher, Chemical Safety RG, JNIOSH*

Jungsun PARK *Chair-Professor, Daegu Catholic University, Gyeongsan, Korea*

Hisataka SAKAKIBARA *Professor, Nagoya University School of Health Sciences, Nagoya, Japan*

Ken C. PARSONS *Dean of Science, Loughborough University, Loughborough, UK*

Steven L. SAUTER *Coordinator, Work Organization & Stress-related Disorders, NIOSH, Cincinnati, USA*

Thomas J. SMITH *Professor Emeritus, Harvard School of Public Health, Boston, USA*

Yuji TAKETANI *Former President, Japan Labour Health & Welfare Organization, Kawasaki, Japan*

Yasuhiro TAKEUCHI *Professor Emeritus, Nagoya University, Nagoya, Japan*

Nobuo YANAGISAWA *Director-General Emeritus, Kanto Rosai Hospital, Kawasaki, Japan*

Shin-ichi SAWADA *Former Director, International Center for Research Promotion & Informatics, JNIOSH*

Derek R. SMITH *Adjunct Professor, James Cook University, Townsville, Australia*

Midori SOTOYAMA *Director, Occupational Ergonomics RG, JNIOSH*

Mitsutoshi TAKAYA *Principal Senior Researcher, Center for Research Promotion & International Affairs, JNIOSH*

Tatsuya TAKESHITA *Professor, Wakayama Medical University School of Medicine, Wakayama, Japan*

Chiharu TOHYAMA *Visiting Professor, Faculty of Medicine, University of Tsukuba, Tsukuba, Japan*

Iwao UCHIYAMA *Professor Emeritus, Kyoto University, Kyoto, Japan*

Shigeo UMEZAKI *Director, Center for Research Promotion & International Affairs, JNIOSH*

Rui-Sheng WANG *Director, Industrial Toxicology & Health Effect RG, JNIOSH*

Kazuhito YOKOYAMA *Professor, Juntendo University Faculty of Medicine, Tokyo, Japan*

Editorial Secretaries

Hitoshi KUBOTA *Senior Researcher, Center for Research Promotion & International Affairs, JNIOSH*

Ken TOKIZAWA *Researcher, Occupational Ergonomics Research Group, JNIOSH*

INDUSTRIAL HEALTH is published bimonthly by the National Institute of Occupational Safety and Health, 6-21-1 Nagao, Tama-ku, Kawasaki 214-8585, Japan TEL: +81-44-865-6111 FAX: +81-44-865-6124 e-mail: ihjim@h.jniosh.johas.go.jp http://www.jniosh.go.jp

Indexed by: Index Medicus [MEDLINE], Chemical Abstracts [CA SEARCH], Biological Abstracts [BIOSIS PREVIEWS], EMBASE/Excerpta Medica, ISI's SCISEARCH®, Chemical Hazards in Industry and Laboratory Hazards Bulletin, Elsevier BIOBASE/Current Awareness in Biological Sciences, NIH Scholarly and Academic Information Navigator [Cinii] (<http://ci.nii.ac.jp/>), Safety and Health at Work (ILO-CIS Bulletin)

Printed by: Letter Press Editing, 1-5-5, Iidabashi, Chiyoda-ku, Tokyo 102-0072, Japan TEL +81-3-6261-2707 FAX +81-3-6261-2708