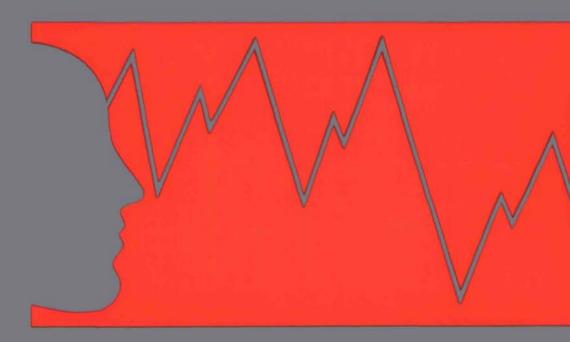
Vol. 7

1991

Supplement 1

International Journal of TECHNOLOGY ASSESSMENT INHEALTH CARE



Cambridge University Press

International Journal of Technology Assessment in Health Care

Official Journal of the International Society for Technology Assessment in Health Care

Editors

Egon Jonsson, Ph.D. Professor The Karolinska Institute and the Swedish Council on Technology Assessment in Health Care P.O. Box 16158 103 24 Stockholm, Sweden (tel.) 46 8 240565

Aims and Scope: The International Journal of Technology Assessment in Health Care has as its specific scope of interest the generation, evaluation, diffusion, and use of health care technology. It addresses the diverse audience of health care providers within medicine, nursing, and the allied health professions; decision makers in government, industry, and health care organizations; and the scholarly disciplines such as ethics, economics, law, history, sociology, psychology, and engineering. The journal aims to fill the needs of those interested in the complexities of interaction between people and technology; technology as a force in social and organizational change; and technology as it is created, produced, applied, and paid for. It examines descriptively and analytically the effects of technology as perceived from the vantage point of different academic disciplines and policy-making organizations and examines methods necessary to conduct studies and evaluations of technology.

The focus of the journal will be the international health care community. The experience of different countries in their encounter with health care technology, viewed comparatively, is invaluable to understanding its effects. Further, it is important to establish ties with the scholars, governments, and private institutions concerned with health care technology so that the experiences and learning of the international community in its parts can benefit the whole. The use of technology in health care has created some of the major dilemmas in society today. The journal will serve as a forum for the wide range of professionals interested in the assessment of medical technology, its consequences for patients, and its impact on society.

Membership in the International Society for Technology Assessment in Health Care: Members receive the journal at individual rates and can participate in the Society's activities, including the annual meeting. Individual dues for 1991, including the journal, are US \$75 for regular membership and US \$50 for student membership, payable to Cambridge.

Publishing, Production, and Advertising Offices: Cambridge University Press, 40 West 20th Street, New York, N.Y. 10011, U.S.A.

Subscription Offices: Cambridge University Press, 110 Midland Avenue, Port Chester, N.Y. 10573, U.S.A. (for U.S.A. and Canada); or Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU, England (for U.K. and elsewhere).

1991 Subscription Information: International Journal of Technology Assessment in Health Care (ISSN 0266-4623) is published quarterly. Annual institutional subscription rates for Volume 7 (1991): US \$105.00 in the U.S.A. and Canada; UK £61.00 in the U.K. and Eire; UK £63.00 elsewhere. Individual rates: US \$80.00 in the U.S.A. and Canada; UK £39.00 elsewhere. Prices include postage and insurance; air mail or registered mail is extra. Back volume prices are available upon request.

Copyright © 1991 Cambridge University Press

All rights reserved. No part of this publication may be reproduced, in any form or by any means, electronic, photocopying, or otherwise, without permission in writing from Cambridge University Press.

Photocopying Information (for users in the U.S.A.): The Item-Fee Code for this publication (0266-4623/91 \$5.00 + .00) indicates that copying for internal or personal use beyond that permitted by Sec. 107 or 108 of the U.S. Copyright Law is authorized for users duly registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that the appropriate remittance of \$5.00 per article is paid directly to: CCC, 27 Congress Street, Salem, MA 01970. Specific written permission must be obtained for all other copying; contact the nearest Cambridge University Press office.

Second-class postage paid at New York, N.Y., and additional mailing offices.

Postmaster: Send address changes in the U.S.A. and Canada to: International Journal of Technology Assessment in Health Care, Journals Department, Cambridge University Press, 110 Midland Avenue, Port Chester, N.Y. 10573, U.S.A.

Stanley J. Reiser, M.D., Ph.D. Professor, Program on Humanities and Technology in Health Care The University of Texas Health Science Center at Houston P.O. Box 20708 Houston, Texas 77225, U.S.A. (tel.) 713 792 5140

International Journal of Technology Assessment in Health Care

| Volume 7 | 1991 | Supplement 1 |
|---|---|--------------|
| NEONA | TAL INTENSIVE CARE: STATE OF THE A | RT |
| Introduction | | 1 |
| Gunnar Sedin | OF RESPIRATION | 1 |
| NEONATAL DISORDERS Epidemiology of Prematur | | 2 |
| John C. Sinclair | ity | 2 |
| Epidemiology of Neonatal Ola Hjalmarson | Disorders of Respiration | 9 |
| Preterm Factors Influencin Alan H. Jobe | ng Surfactant Deficiency | 16 |
| Neonatal Surfactant Defic. Mikko Hallman Maija Pohjavuori | iency and Surfactant Replacement Therapy Kristiina Bry T. Allen Merritt | 21 |
| Indications for Continuou Anders Jonzon | s Positive Airway Pressure and Respirator T | herapy 26 |
| CPAP and Mechanical Ver Gunnar Sedin | ntilation | 31 |
| High-Frequency Oscillator W. Alan Hodson | y Ventilation | 41 |
| Respiratory Control and S Hugo Lagercrantz | timulation of Spontaneous Breathing | 47 |
| Extracorporeal Membrane George Lister | Oxygenation | 52 |
| Pathophysiology of Neona Richard D. Bland | atal Lung Injury | 56 |
| Bronchopulmonary Dyspla of Outcome William E. Truog | asia: Pharmacologic Treatments and Predicti | on 61 |
| NEONATAL DISORDERS | | |
| Persistent Pulmonary Hypertension of the Newborn George Lister | | 66 |
| Persistent Patent Ductus A Ronald I. Clyman | Arteriosus | 70 |
| Control of Blood Pressure Hans T. Versmold | e and the Distribution of Blood Flow | 79 |
| NEONATAL DISORDERS | OF WATER AND HEAT BALANCE | |
| Water and Heat Balance Karen Hammarlund | | 85 |
| Electrolyte Balance | | 90 |
| Anita Aperia Peter Herin | | |
| | born Infants in Intensive Care | 94 |
| Albert Okken | then the second second | 24 |

| NEONATAL DISORDERS OF THE CENTRAL NERVOUS SYSTEM | |
|--|-----|
| Hemorrhagic and Ischemic Lesions of the Perinatal Brain Linda de Vries Lilly M. S. Dubowitz | 99 |
| Etiology and Pathophysiology of Postasphyxial Brain Damage Ingemar Kjellmer | 106 |
| Prevention and Treatment of Postasphyxial Cerebral Damage Kari O. Raivio | 110 |
| Outcome after Asphyxial and Circulatory Disturbances in the Brain Malcolm I. Levene | 113 |
| METHODS IN FOLLOW-UP STUDIES AFTER NEONATAL INTENSIVE CARE | |
| Which Neurological Examinations Can Be Used to Predict Outcome during the Neonatal Period? Frances Cowan | 118 |
| New Noninvasive Techniques for Assessing Brain Oxygenation and Hemodynamics E. Osmund R. Reynolds | 125 |
| Neurological and Developmental Follow-Up of a Population at Risk Ann L. Stewart | 128 |
| THE ETHICS OF NIC | |
| Moral Dilemmas in Neonatal Medicine Ola Didrik Saugstad | 133 |
| Ethical Problems in Neonatal Intensive Care Kari O. Raivio | 136 |
| Legal Issues in Neonatal Intensive Care Nancy K. Rhoden | 139 |
| Swedish Law and Neonatal Intensive Care Bertil Widman | 143 |
| Economic Evaluation of Neonatal Intensive Care: Which Variables Have to Be Known? John C. Sinclair | 146 |
| What Is the Cost of a Handicapped Child in Sweden? Nils W. Svenningsen | 151 |
| What Is the Actual Cost of Neonatal Intensive Care? Uwe Ewald | 155 |
| CONFERENCE SUMMARY | |
| Conclusions from Day 1: Workshops I, II, and III | 162 |
| Summary of Day 1: Workshops I, II, and III | 163 |
| Conclusions from Day 2: Workshops I, II, and III | 164 |
| Summary of Day 2: Workshops I, II, and III | 166 |
| Summary of Day 3: Workshops I, II, and III | 167 |

168

Conclusions from the Final Discussion

International Journal of Technology Assessment in Health Care

Editors

Egon Jonsson, Ph.D.

Professor The Karolinska Institute and the Swedish Council on Technology Assessment in Health Care PO. Box 16158 103 24 Stockholm, Sweden

Bernard S. Bloom, Ph.D.

Research Associate Professor University of Pennsylvania Medical School Philadelphia, Pennsylvania, U.S.A.

Richard Chrzanowski, M.D.

Institut Suisse de la Sante Publique Aarau, Switzerland

Murray Eden, Ph.D.

Chief of Biomedical Engineering and Instrumentation Branch Division of Research Service N.I.H. Bethesda, Maryland, U.S.A.

Paul F. Gross

Director Institute of Health Economics and Technology Assessment North Sydney, Australia

Ruth S. Hanft, Ph.D.

Research Professor of Health Services The George Washington University Washington, D.C., U.S.A.

Per Buch Andreasen, M.D., Ph.D.

Department of Gastroenterology and Clinical Pharmacology Gentofte University Hospital Hellerup, *Denmark*

H. David Banta, M.D., M.P.H. Professor University of Limburg Maastricht, *Netherlands*

Stanley J. Reiser, M.D., Ph.D. Professor, Program on Humanities and Technology in Health Care The University of Texas Health Science Center at Houston P.O. Box 20708 Houston, Texas 77225, U.S.A.

Associate Editors

Samuel Korper, Ph.D.

Associate Director for Planning, Analysis, and Communication National Institute of Aging Bethesda, Maryland U.S.A.

Frederick Mosteller, Ph.D. Director Technology Assessment Group Department of Health Policy and Management Harvard School of Public Policy Boston, Massachusetts, U.S.A.

Jorge Peña-Mohr, Ph.D. Pan American Health Organization Pan American Sanitary Bureau World Health Organization Washington, D.C., U.S.A.

Seymour Perry, M.D. Professor Department of Community and Family Medicine Georgetown University School of Medicine Washington, D.C., U.S.A.

Tore Scherstén, M.D. Professor Dean, Faculty of Medicine University of Göteborg Department of Surgery Göteborg, Sweden

Editorial Board

Jeremiah A. Barondess, M.D. Professor Cornell University Medical College New York, New York, U.S.A.

Clyde Behney Health Program Manager Office of Technology Assessment Congress of the United States Washington, D.C., U.S.A. Jane E. Sisk, Ph.D. Office of Technology Assessment Congress of the United States Washington, D.C., U.S.A.

Stephan Tanneberger, M.D., Ph.D.

Professor Division of Oncology Saint Orsola Malpighi Policlinic Hospital Bologna, *Italy*

Norman Weissman, Ph.D.

Director Division of Extramural Research National Center for Health Services Research and Health Care Technology Assessment Rockville, Maryland, U.S.A.

Elizabeth Heitman, Ph.D.

Assistant Editor Program on Humanities and Technology in Health Care University of Texas Health Science Center Houston, U.S.A.

Robert Brook, M.D., Sc.D.

The Rand Corporation UCLA Schools of Medicine and Public Health Santa Monica, CA, U.S.A.

Roger Bulger, M.D.

President Association of Academic Health Centers Washington, D.C., U.S.A.

Editorial Board (continued)

John P. Bunker, M.D. Professor School of Medicine Stanford University Stanford, California, U.S.A.

E. N. Chigan, M.D. Director Division of Noncommunicable Diseases and Health Technology World Health Organization Geneva, Switzerland

Hesio Cordeira, M.D. Professor Universidade Federal do Rio de Janeiro Rio de Janeiro, *Brazil*

Luigi Donato, M.D. Professor Instituto de Fisiologia Clinica CNR Pisa, Italy

Robert Evans, Ph.D. Professor Department of Economics University of British Columbia Vancouver, British Columbia, *Canada*

David Feeney, Ph.D. Professor McMaster University Hamilton, Ontario, *Canada*

Peter F. Hjort, M.D. Professor National Institute of Public Health Oslo, Norway Naoki Ikegami, M.D. Professor Keio University School of Medicine Tokyo, Japan

Bryan Jennett, M.D. Professor Dean, Faculty of Medicine University of Glasgow Glasgow, Scotland

Duncan Neuhauser, Ph.D. Professor Department of Community Health School of Medicine Case Western Reserve University Cleveland, Ohio, U.S.A.

Mirlam Orleans, Ph.D. Professor Department of Preventive Medicine and Biometrics University of Colorado Health Sciences Center Denver, Colorado, U.S.A.

Emile Papiernik, M.D. Professor Hospital Antoine Beclere Clamart, *France*

Frederick C. Robbins, M.D. University Professor Case Western Reserve University Cleveland, Ohio, U.S.A. Steven Schroeder, M.D. President Robert Wood Johnson Foundation Princeton, New Jersey, U.S.A.

Mordechai Shani, M.D. Director The Chaim Sheba Medical Center Tel-Hashomer. *Israel*

Barbara Stocking, M.Sc. Director King's Fund Centre for Health Sciences Development London, England

Jacabo A. Tieffenberg, M.D. President ACINDES Buenos Aires, Argentina

Ted Tyson President Tyson Consulting Group Buffalo Grove, Illinois, U.S.A.

Judith L. Wagner, Ph.D. Office of Technology Assessment Congress of the United States Washington, D.C., U.S.A.

Johannes Vang, M.D., Ph.D. Professor Manager, European Program for Hospitals and Health Institutions World Health Organization Copenhagen, *Denmark*

Kara K. McArthur Editorial Assistant The University of Texas Health Science Center at Houston Houston, Texas, U.S.A.

Supplement

NEONATAL INTENSIVE CARE

State of the Art

Guest Editor

Gunnar Sedin

University Hospital Uppsala, Sweden

with assistance from

Karen Hammarlund University Hospital Uppsala, Sweden

Published by the Press Syndicate of the University of Cambridge The Pitt Building, Trumpington Street, Cambridge CB2 1RP 40 West 20 Street, New York, NY 10011, U.S.A. 10 Stamford Road, Oakleigh, Melbourne 3166, Australia

© Cambridge University Press

First published 1991

Printed in the United States of America at Capital City Press, Montpelier, VT

ISSN 0266-4623 ISBN 0 521 40558 0

State of the Art Conference on Neonatal Intensive Care Arranged by the Swedish Medical Research Council

Organizer

Gunnar Sedin, M.D. Department of Pediatrics University Hospital S-751 85 Uppsala Sweden

Program Committee

Gunnar Sedin, M.D. Ola Hjalmarsson, M.D. Ingemar Kjellmer, M.D. Nils Svenningsen, M.D.

Organizing Committee

Gunnar Sedin, M.D. Karen Hammarlund, M.D. Susanne Thorell, secretary Barbro Östmark-Kjällström, laboratory technician

Contributors

Aperia, Anita, M.D., Department of Pediatrics, St. Görans Hospital, S-112 81 Stockholm, Sweden

- Bland, Richard D., M.D., Cardiovascular Research Institute, University of California, 3rd and Parnassus Avenue, San Francisco, CA 94143, U.S.A.
- Bry, Kristiina, M.D., Department of Pediatrics, University of Helsinki, SF-00290 Helsinki 29, Finland
- Clyman, Ronald I., M.D., Cardiovascular Research Institute, University of California, 3rd and Parnassus Avenue, San Francisco, CA 94143, U.S.A.
- Cowan, Frances, M.D., Department of Pediatrics, Hammersmith Hospital, Du Cane Road, London W12 OHS, England
- de Vries, Linda, M.D., Universitaire Zeikenhuizen Kindergeneeskunde Kinderneurologie, U.Z. Gasthuisberg, Herestraat 49, 3000 Leuven, *The Netherlands*
- Dubowitz, Lilly D., M.D., Department of Pediatrics, Hammersmith Hospital, Du Cane Road, London W12 OHS, England
- Ewald, Uwe, M.D., Department of Pediatrics, University Hospital, S-751 85 Uppsala, Sweden
- Hallman, Mikko, M.D., Department of Pediatrics, University of Helsinki, SF-00290 Helsinki 29, Finland
- Hammarlund, Karen, M.D., Department of Pediatrics, University Hospital, S-751 85 Uppsala, Sweden
- Herin, Peter, M.D., Department of Pediatrics, St. Görans Hospital, S-112 81 Stockholm, Sweden
- Hjalmarsson, Ola, M.D., Department of Pediatrics, East Hospital, S-416 85 Gothenburg, Sweden
- Hodson, W. Alan, M.D., Department of Pediatrics, RD-20, Division of Neonatal Biology, University of Washington RR4449, Health Science Building, Seattle, WA 98195, U.S.A.
- Jobe, Alan H., M.D., University of California, UCLA School of Medicine, Harbor/UCLA Medical Center, 1000 West Carson Street, Torrance, CA 90509 U.S.A.
- Jonzon, Anders, M.D., Department of Pediatrics, University Hospital, S-751 85 Uppsala, Sweden

Kjellmer, Ingemar, M.D., Department of Pediatrics, East Hospital, S-416 85 Gothenburg, Sweden

Lagercrantz, Hugo, M.D., Department of Pediatrics, Karolinska Hospital, S-104 01 Stockholm, Sweden

Levene, Malcolm, M.D., Department of Child Health, Clinical Sciences Building, Leicester Royal Infirmary, P.O. Box 65, Leicester LE27LX, England

- Lister, George, M.D., Yale University, Section of Critical Care and Applied Physiology, Department of Pediatrics, School of Medicine, 333 Cedar Street, P.O. Box 3333, New Haven, CT 06510 U.S.A.
- Merritt, T. Allen, M.D., Department of Pediatrics, University of California, Dickinson Street, San Diego, CA 92103 U.S.A.
- Okken, Albert, M.D., Division of Neonatology, Department of Pediatrics, State University, 59, Oostersingel, NL-9713 EZ Groningen, *The Netherlands*
- Pohjavuori, Maija, M.D., Department of Pediatrics, University of Helsinki, SF-00290 Helsinki, *Finland*
- Raivio, Kari, M.D., Department of Pediatrics, University of Helsinki, SF-00290 Helsinki 29, Finland
- Reynolds, E. Osmund R., M.D., Department of Pediatrics, University College London, The Rayne Institute, University Street, London WC1E 6JJ, England
- Rhoden, Nancy K., J.D. The University of North Carolina at Chapel Hill, School of Law, CB# 3380, Van Hecke-Wettach Hall, Chapel Hill, NC 27599-3380, U.S.A.
- Saugstad, Ola Didrik, M.D., Department of Pediatrics, University of Oslo, The National Hospital, 0027 Oslo 1, Norway
- Sinclair, John C., M.D., Department of Pediatrics, McMaster University, 1200 Main Street West, Hamilton, Ontario L8N 3Z5, Canada
- Stewart, Ann, M.D., Department of Pediatrics, University College London, The Rayne Institute, 5 University Street, London WC1E 6JJ, England
- Svenningsen, Nils, M.D., Department of Pediatrics, University of Lund, S-221 85 Lund, Sweden
- Truog, William E., M.D., Division of Neonatal and Respiratory Diseases, Department of Pediatrics, RD-20, University of Washington, Seattle, WA 98195, U.S.A.
- Versmold, Hans, M.D., Neonatologie der Frauenklinik, Klinikum Grosshadern der Universitet München, Marchioninistrasse 15, D-8000 München 70, Germany
- Widman, Bertil, M.D., National Board of Health and Welfare, S-106 30 Stockholm, Sweden

Observers and Participants in Workshops

Andersson, Hans, M.D., Department of Pediatrics, Central Hospital, S-721 89 Västerås, Sweden

Broberger, Ulf, M.D., Department of Pediatrics, Karolinska Hospital, S-104 01 Stockholm, Sweden

- Edberg, Karl-Erik, M.D., Department of Anesthesiology, East Hospital, S-416 85 Gothenburg, Sweden
- Feychting, Hans, M.D., Department of Anesthesiology, St. Görans Hospital, S-112 81 Stockholm, Sweden
- Finnström, Orvar, M.D., Department of Pediatrics, Regional Hospital, S-581 85 Linköping, Sweden
- Forsberg, Björn, lawyer, National Board of Health and Welfare, Stockholm, Sweden
- Forsberg, Hans, M.D., Department of Pediatrics, Karolinska Hospital, S-104 01 Stockholm, Sweden
- Gentz, Johan, M.D., Department of Pediatrics, Sachs's Childrens Hospital, S-116 69 Stockholm, Sweden
- Kero, Pentti, M.D., Department of Pediatrics, University Hospital, SF-20520 Turku, Finland
- Larsson, Agne, M.D., Department of Pediatrics, University Hospital, S-751 85 Uppsala, Sweden

Leijon, Ingemar, M.D., Department of Pediatrics, Regional Hospital, S-581 85 Linköping, Sweden

Lindblad, Christina, M.D., Department of Pediatrics, Central Hospital, S-651 85 Karlstad, Sweden

Lindmark, Gunilla, M.D., Department of Obstetrics, University Hospital, S-751 85 Uppsala, Sweden

Lindroth, Magnus, M.D., Department of Pediatrics, University Hospital, S-221 85 Lund, Sweden

Lundell, Bo, M.D., Department of Pediatrics, St. Görans Hospital, S-112 81 Stockholm, Sweden

Markestad, Trond, M.D., Department of Pediatrics, University Hospital, Bergen, Norway

- Olsen, Leif, M.D., Department of Pediatric Surgery, University Hospital, S-751 85 Uppsala, Sweden
- Persson, Kicki, M.D., Department of Pediatrics, University Hospital, S-751 85 Uppsala, Sweden
- Piekkala, Paula, M.D., Department of Pediatrics, University Hospital, SF-20520 Turku, Finland
- Riesenfeld, Tomas, M.D., Department of Pediatrics, University Hospital, S-751 85 Uppsala, Sweden
- Robertsson, Bengt, M.D., Department of Pediatric Pathology, St. Görans Hospital, S-112 81 Stockholm, Sweden
- Schulze, Andreas, M.D., Department of Pediatrics, Medizinische Akademie, "Carl Gustav Carus," Klinik für Kinderheilkunde, DDR-8019 Dresden, Fetscherstrasse 74, Germany
- Sjölin, Stig, M.D., Department of Pediatrics, University Hospital, S-751 85 Uppsala, Sweden
- Spross, Åke, medical publicist, Uppsala Nya Tidning, Box 36, S-751 03 Uppsala, Sweden
- Strömberg, Bo, M.D., Department of Pediatrics, University Hospital, S-751 85 Uppsala, Sweden
- Tantalean, José, M.D., Department of Pediatrics, University Hospital, S-751 85 Uppsala, Sweden; National Child's Health Institute, Av. Brasil N° 600-Brena, Lima, Peru
- Thiringer, Klara, M.D., Department of Pediatrics, East Hospital, S-416 85 Gothenburg, Sweden
- Wesström, Göran, M.D., Department of Pediatrics, Regional Hospital, S-701 85 Örebro, Sweden
- Wiklund, Lars, M.D., Department of Anesthesiology, University Hospital, S-751 85 Uppsala, Sweden

ORGANIZATION OF WORKSHOPS

Day 1

Workshop I

Svenningsen, Nils, chairman Hammarlund, Karen, secretary Cowan, Frances de Vries, Linda Feychting, Hans Finnström, Orvar Hjalmarsson, Ola Jonzon, Anders Kero, Pentti Kjellmer, Ingemar Lagercrantz, Hugo Larsson, Agne Lindroth, Magnus Persson, Kicki Schulze, Andreas Truog, William Wesström, Göran Widman, Bertil

Day 2

Workshop I

Kjellmer, Ingemar, chairman Lundell, Bo, secretary Andersson, Hans Aperia, Anita Broberger, Ove Clyman, Ronald I. Cowan, Frances de Vries, Linda Edberg, Karl-Erik Ewald, Uwe Feychting, Hans Finnström, Orvar Forsberg, Hans Gentz, Johan Hammarlund, Karen Herin, Peter Hjalmarsson, Ola Hodson, W. Alan

Day 3

Workshop I

Lister, George, chairman Hjalmarsson, Ola, secretary Aperia, Anita Cowan, Frances Forsberg, Björn Jonzon, Anders Lindblad, Cristina Lindmark, Gunilla Lundell, Bo Okken, Albert Reynolds, E. Osmund R. Robertsson, Bengt Schulze, Andreas Stewart, Ann Strömberg, Bo Truog, William Wesström, Göran Widman, Bertil

Workshop II

Okken, Albert, chairman Broberger, Ulf, secretary Andersson, Hans Bland, Richard D. Ewald. Uwe Hallman, Mikko Hodson, W. Alan Leijon, Ingemar Levene, Malcolm I. Lindblad, Cristina Lundell, Bo Markestad, Trond Olsen. Leif Riesenfeld, Tomas Stewart, Ann Tantalean, José Versmold, Hans

Workshop II

Bland, Richard D., chairman Hallman, Mikko, secretary Jobe, Alan H. Jonzon, Anders Kero, Pentti Lagercrantz, Hugo Larsson, Agne Leijon, Ingemar Levene, Malcolm I. Lindblad, Cristina Lister, George Markestad, Trond Okken, Albert Olsen, Leif Persson, Kicki Piekkala, Paula Raivio, Kari

Workshop II

Saugstad, Ola D., chairman Levene, Malcolm, secretary Andersson, Hans Edberg, Karl-Erik Feychting, Hans Forsberg, Hans Gentz, Johan Hammarlund, Karen Kjellmer, Ingemar Lagerkrantz, Hugo Leijor, Ingemar Levene, Malcolm I. Persson, Kicki Raivio, Kari Saugstad, Ola D. Sedin, Gunnar Sinclair, John C. Tantalean, José Thiringer, Klara Versmold, Hans Wiklund, Lars

Workshop III

Robertsson, Bengt, chairman Saugstad, Ola D., secretary Aperia, Anita Clyman, Ronald I. Edberg, Karl-Erik Gentz, Johan Herin. Peter Jobe, Alan H. Lister, George Piekkaka, Paula Raivio, Kari Reynolds, E. Osmund R. Sedin, Gunnar Sinclair, John C. Strömberg, Bo Thiringer, Klara Wiklund, Lars

Workshop III

Reynolds, E. Osmund R., chairman Strömberg, Bo, secretary Riesenfeld, Tomas Robertsson, Bengt Saugstad, Ola D. Schulze, Andreas Sedin, Gunnar Sinclair, John C. Stewart, Ann Svenningsen, Nils Tantalean, José Thiringer, Klara Truog, William Versmold, Hans Wesström, Göran Widman, Bertil Wiklund, Lars

Workshop III

Jobe, Alan, chairman Larsson, Agne, secretary Bland, Richard D. Broberger, Ove Clyman, Ronald I. de Vries, Linda Ewald, Uwe Finnstrom, Orvar Hallman, Mikko Herin, Peter Hodson, W. Alan Jobe, Alan H. Larsson, Agne Lindroth, Magnus Kero, Pentti Markestad, Trond Meurling, Staffan Piekkala, Paula Riesenfeld, Tomas Sjölin, Stig Svenningsen, Nils