DIGEST OF PAPERS

3rd CMBES Canadian Clinical Engineering Conference

September 22 - 25, 1981

Saskatoon, Saskatchewan, Canada

SPONSORED BY:

THE CANADIAN MEDICAL AND BIOLOGICAL ENGINEERING SOCIETY
UNIVERSITY HOSPITAL, SASKATOON
THE UNIVERSITY OF SASKATCHEWAN
THE CITY OF SASKATOON
3rd CMBES Canadian Clinical Engineering Conference
Saskatoon, Saskatchewan, September 22-25, 1981
Theatre on the Mall, University Hospital

PRELIMINARY PROGRAM

September 22, Tuesday - Birch Room, Park Town Motel

9:00-12:00 CMBET Subcommittee Meeting

13:00-17:00 Board of Examiners Clinical Engineering Certification

19:30-21:30 CMBES President’s Reception
Maple Room, Park Town Motel

September 23, Wednesday - Theatre on the Mall, University Hospital

8:00 Registration

9:00 Opening

Conference Chairman
University Hospital
University of Saskatchewan
CMBES President

Keynote Address

Clinical Engineering and Hospital Accreditation in Canada

J.A. McEwan
Biomedical Engineering Dept., Vancouver General Hospital, Vancouver, B.C.

10:15 Coffee - Exhibit Area, Ellis Hall

10:30 Clinical Engineering 1

Session Chairman, K. Takaya

Electrical Engineering, University of Saskatchewan, Saskatoon

1. CMBES Guidelines for Clinical Engineering Regional/Shared Services

G. Eisler
Royal Columbian Hospital, New Westminster, B.C.
2. Rationalization and Regionalization of Biomedical Electronics Services in Regina and Southern Saskatchewan 7

H. Nottebrock
Biomedical Electronics Department
Plains Health Centre, Regina

3. Maintenance Procedures for Hospital Equipment 11

W.B. Reid
Cancer Clinic, University Hospital, University of Saskatchewan, Saskatoon

4. Experiences in Multiphasic Health Screening Centre in Japan 14

K. Takaya
Electrical Engineering, University of Saskatchewan, Saskatoon

12:15 Lunch - Marquis Hall

13:45 Medical Updates 1: Radiology and Medical Imaging

Session Chairman, M.O. Toll
Faculty of Engineering, Memorial University of Newfoundland, St. John's, Newfoundland

1. ECG - Chest X-ray Synchronization, A Microprocessor Based System 17

M.O. Toll, I.L. Dickenson and R.S. Harris*
Faculty of Engineering, Faculty of Medicine*
Memorial University of Newfoundland, St. John's, Newfoundland

2. Control of Radiation Exposure in Medical Practice 21

L.D. Brown
Radiation Safety Unit, Saskatchewan Department of Labour, Regina

3. Microprocessor-Based Scintillation Counter-Controller 25

B.G. Trenholm, G.J. Cecchini and G.P. Sharma
St. Boniface General Hospital, Winnipeg, Manitoba
15:00  Coffee - Exhibit Area, Ellis Hall

15:30  Computer Applications

Session Chairman, W.B. Reid

Cancer Clinic, University Hospital
University of Saskatchewan, Saskatoon

1. Automation of Service and Administration for Practice of Radiology, The ARMOR System - Associated Radiologists of Saskatoon

E.A. Brooks

Analytics International Ltd., Saskatoon

2. Interfacing the 'M' Analyzer to the Datamedix Clinical Laboratory Computer

K.L. Massey

Department of Pathology
University of Saskatchewan, Saskatoon

3. Personal Information Management

S. Katz

Custom Computing Systems, Inc., Saskatoon

September 24, Thursday - Theatre on the Mall, University Hospital

8:45  Clinical Engineering 2

Session Chairman, Alf Dolan

Canadian Standards Association
CMBES President

1. The Impact of Technology on Nursing

G. Laing

College of Nursing
University of Saskatchewan, Saskatoon

2. The Risk of Electric Shock

O.Z. Roy

National Research Council of Canada, Ottawa
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<td>10:25 Medical Updates 2: Intensive Care, Respiration</td>
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<td>Session Chairman, K. Sankaran</td>
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<td>Neonatology Section, University Hospital</td>
<td>University of Saskatchewan, Saskatoon</td>
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<td>Computerization of the Pulmonary Function Laboratory</td>
<td>B.L. Graham</td>
<td>Department of Medicine, University of Saskatchewan, Saskatoon</td>
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<td>Room Humidifiers in Canadian Hospitals</td>
<td>G.H. Green</td>
<td>Mechanical Engineering, University of Saskatchewan, Saskatoon</td>
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<td>Winter Humidities and Related Absenteeism in Canadian Hospitals</td>
<td>G.H. Green</td>
<td>Mechanical Engineering, University of Saskatchewan, Saskatoon</td>
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<td>Neonatal Intensive Care - Past, Present, Future</td>
<td>K. Sankaran</td>
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12:00 Certification Luncheon - Marquis Hall
Sponsored by the University of Saskatchewan

13:00 CMBES Business Meeting

14:15 Coffee - Exhibit Area, Ellis Hall

14:40 Medical Updates 3: Anaesthesia, Cardiology
Session Chairman, J.F. Lopez

Hemodynamics Laboratory, University Hospital
University of Saskatchewan, Saskatoon

1. State of the Art of Cardiac Pacing 60
   B.R. Vachon
   Biomedical Engineering Department
   St. Michael's Hospital, Toronto

2. Some Recent Advances in Clinical Electrocardiography 63
   M.M. Gupta and K. Prasad*
   Department of Biomedical Engineering, *Departmental Physiology,
   University of Saskatchewan, Saskatoon

3. Intra-Operative Autotransfusion with the Haemanetics Cell Saver 65
   D.C. Morey and C.J. Kilduff
   Dept. of Anaesthesia, University Hospital,
   University of Saskatchewan, Saskatoon

4. Accidental Disconnections in Anaesthetic Breathing Circuits 68
   P.D. Neufeld, A.S. Sinclair and D.L. Johnson
   Bureau of Medical Devices, Health and Welfare Canada, Ottawa

5. Operational and Safety Considerations for IMED 350 69
   C.L. Deckert
   IMED Corporation, San Diego, Calif.
18:30  Banquet

Sponsored by the City of Saskatoon

Oak Room: Park Town Motel
Cash Bar: 18:30-19:30
Banquet: 19:30
Guest Speaker: The Hon. H. Rolfes, Saskatchewan Minister of Health

September 25, Friday - Theatre on the Mall, University Hospital

8:50  Medical Updates 4: Surgery, Orthopedics, Dentistry

Session Chairman, W.A. Silver

Orthopaedics, University Hospital
University of Saskatchewan, Saskatoon

1. Enterostomal Therapy 73

K. Dietz

Patient Education Centre, University Hospital
University of Saskatchewan, Saskatoon

2. Dental and Oral Care for the Handicapped 75

J. Schiffman

College of Dentistry, University of Saskatchewan, Saskatoon

3. An Overview of Electrosurgery 78

M. Frize

Regional Clinical Engineering Services,
Dr. G.L. Dumont Hospital, Moncton, N.B.

4. The Thermographic Detection of Pain 82

M. Frize, G. Quartey, H. Evans and D. Lapalme

Regional Clinical Engineering Services,
Dr. G.L. Dumont Hospital, Moncton, N.B.

5. The Pattern of Principal Strains in the Human Tibia 84

J.B. Finlay, R.B. Bourne and J. McLean

Dept. of Biomedical Engineering and Orthopaedics,
University Hospital, London, Ontario

10:30  Coffee - Exhibit Area, Ellis Hall
10:45 Rehabilitation Engineering 1

Session Chairman, J. Leszczynki

Rehabilitation Medicine, University Hospital, University of Saskatchewan, Saskatoon

1. A Clinical Gait Evaluation Process Pertinent to Children with Myelomeningocele
   N. Carroll, D. Johns and W. Mascuich
   Ontario Crippled Children's Centre, Toronto, Ontario
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2. Software Compensation for Gravitationally Induced Error in Isokinetic Dynanometry
   K. Olds, P. Rosenrot and C.M. Godfrey
   Rehabilitation Medicine, University of Toronto
   The Wellesley Hospital, Toronto, Ontario
   91

3. A "Universal" Control System for Applying Functional Electrical Stimulation to the Improvement of Gait in Hemiplegic Patient
   B. Brandell
   Dept. of Anatomy, University of Saskatchewan
   Saskatoon
   95

4. An EMG-Toy Interface to Facilitate Myoelectric Controls Training in Child Amputees
   A.E. Sochaniwskyj, A.R. Mandel and M. Marshall
   Rehabilitation Engineering Dept. Ontario Crippled Children's Centre, Toronto, Ontario
   98

12:15 Lunch - Marquis Hall

13:30 Rehabilitation Engineering 2

Session Chairman, V. Pollak

Electrical Engineering, University of Saskatchewan, Saskatoon

1. A Microcomputer Environment Aid for the Disabled
   A.C. Easty and P. Mendler
   Dept. of Medical Engineering, Toronto General Hospital, Toronto, Ontario
   101
2. Speech Aids are Coming: A Spellex Aid for the Blind Programmer and the Blind Typist 103

M.P. Beddoes

Dept. of Electrical Engineering, University of British Columbia, Vancouver

3. A Tongue Operated Computer Keyboard for the Disabled 106

P. Graystone and B. Smith

School of Rehabilitation medicine, University of British Columbia, Vancouver, B.C.


M.J. Forbes, J.B. Heath, H.E. Pullen and R.J. Thornhill

Rehabilitation Engineering Dept. Health Science Centre, Winnipeg, Manitoba

5. An Elevating Van Seat for Quadriplegic Drivers 113

M.J. Forbes and R.J. Thornhill

Rehabilitation Engineering Dept. Health Science Centre, Winnipeg, Manitoba

15:10 Closing Remarks

Program Chairman

CMBES President