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**Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)**

**Submission Title:** [Introduction of Medical ICT Consortium in Japan and Official Liaison for IEEE802.15 TG6]

**Date Submitted:** [July, 2008]

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**Company** [National Institute of Information and Communications Technology (NICT) and Yokohama National University]

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**Abstract:** [This document describe introduction of Medical ICT Consortium in Japan to be an official liaison for IEEE802.15 TG6.]

**Purpose:** [To help discussion in IEEE 802.15.MBAN.]

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# Introduction of Medical ICT Consortium in Japan and Official Liaison for IEEE802.15 TG6

Ryuji Kohno

National Institute of Information and Communications  
Technology (NICT),  
Yokohama National University

# Japanese Government Strategy

- The 3rd Science and Technology Basic Plan in Government (FY2006-FY2010)
  - Promoting R&D of ICT for safe and reliable social infrastructure including medical infrastructure
- Ubiquitous Network “u-Japan Plan” in MIC (FY2006-FY2010)
  - Establishing Ubiquitous Ad-Hoc Network for Medical Service

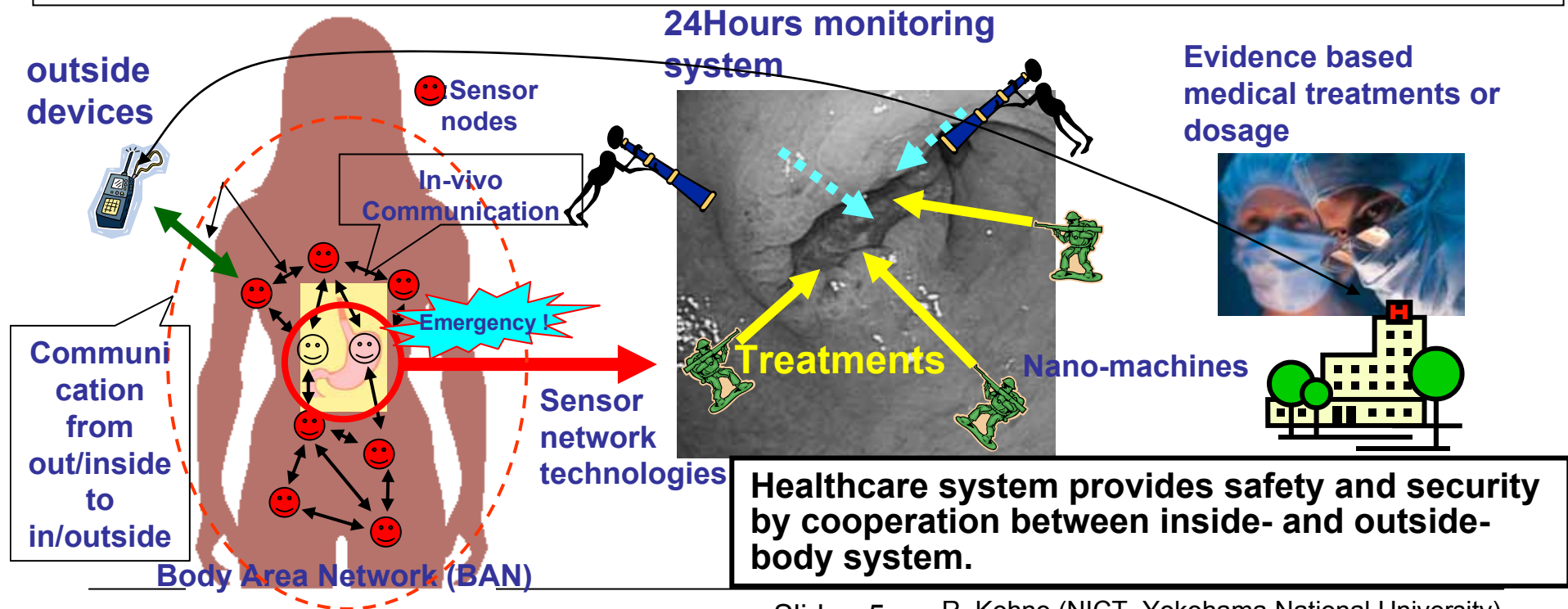
# **NICT (National Institution of Information Communication Technologies) Medical ICT Project**

**NICT has researched and developed core technologies for Medical ICT, such as**

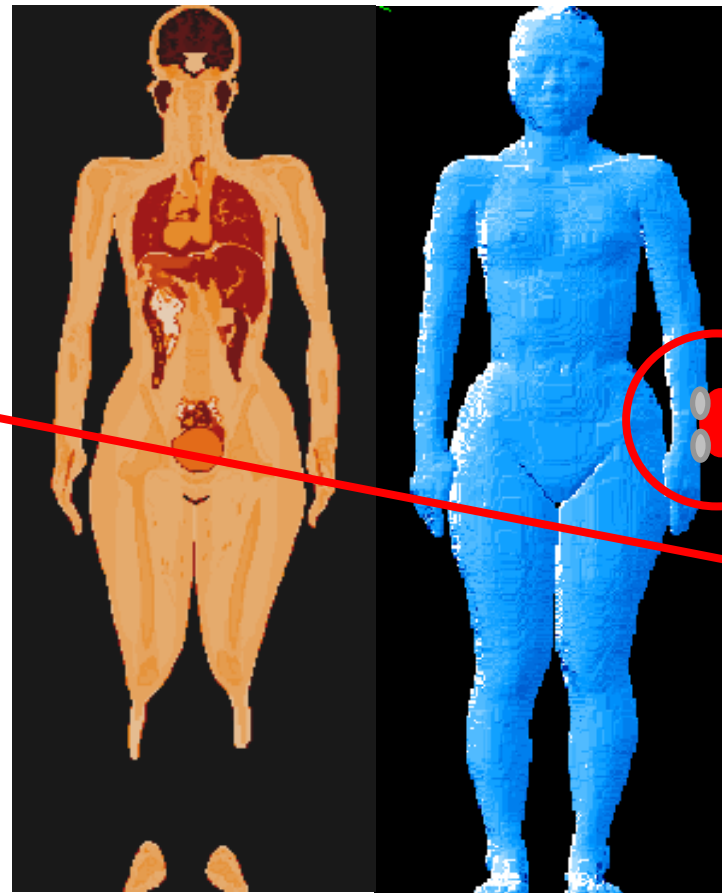
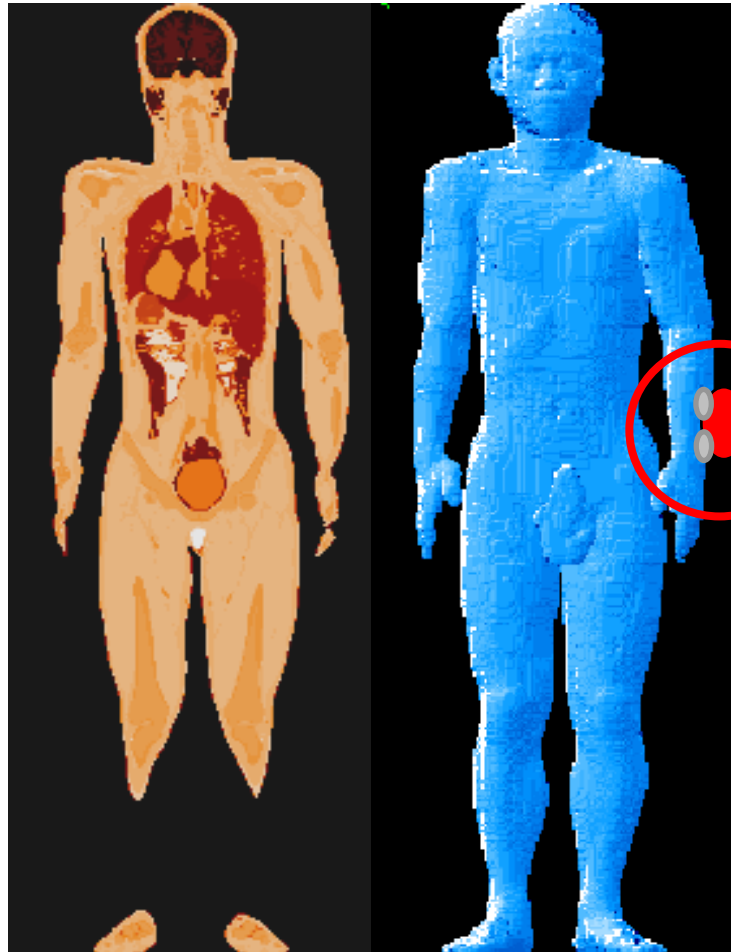
- **Biomedical EMC Measurement**
  - Safety guidelines for human body
- **Ultra-wideband (UWB) Communications and Positioning**
  - low-interference RF signals for medical equipments and human body

# NICT Medical ICT Project

- R&D of Medical Healthcare Systems Based on Advanced Wireless Technologies Useful to Support Medical Treatments and Diagnosis, e.g. **BAN (Body Area Network)**
- Making **Guidelines** for Wireless ICT for Medical Uses, i.e. **EMC, SAR**
- Promotion of **Standard** for Medical ICT Systems, e.g. **BAN, MICS**



# EMC Analysis with High-Resolution Whole-Body Voxel Models of Japanese Adult Males and Females

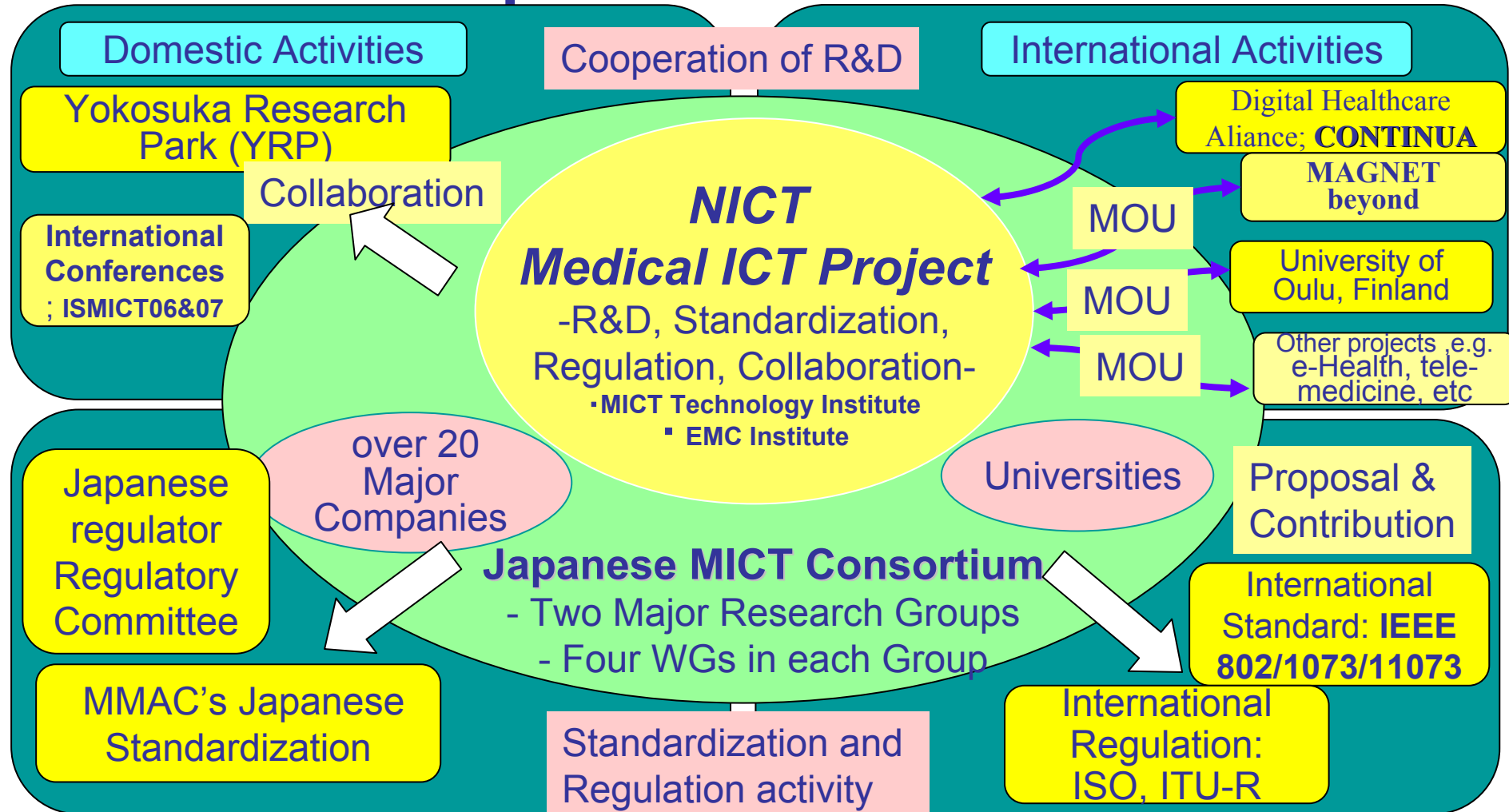


Given by  
**NICT EMC**  
Center Body  
EMC group  
<http://www2.nict.go.jp/mt/b186/menu.html>

**Wearable  
Terminal**

\*Tomoaki Nagaoka, et al., "Development of Realistic High-Resolution Whole-Body Voxel Models of Japanese Adult Males and Females of Average Height and Weight, and Application of Models to Radio-Frequency Electromagnetic-Field Dosimetry" Physics in Medicine and Biology, Vol.49, pp.1-15, 2004.

# NICT Medical ICT Project and Japanese MICT Consortium



# Medical ICT Consortium (Japan)

**NTT-AT**

**OKI**

**OMRON HEALTHCARE**

**OLYMPUS MEDICAL  
SYSTEM**

**KDDI LAB.**

**SANGIKYO**

**COOPERATION**

**SIEMENS**

**SHARP**

**TSUMURA RESEARCH LAB.**

**TOSHIBA**

**NIPPON SIGNAL**

**NETWORK SYSTEMS**

**Hitachi**

**FUJI FILM**

**FUJITSU**

**FUJITSU COMPONENT**

**BUSAN TECHSEL ELECTRONICS**

**MATSUSITA ELECTRICAL**

**TERUMO**

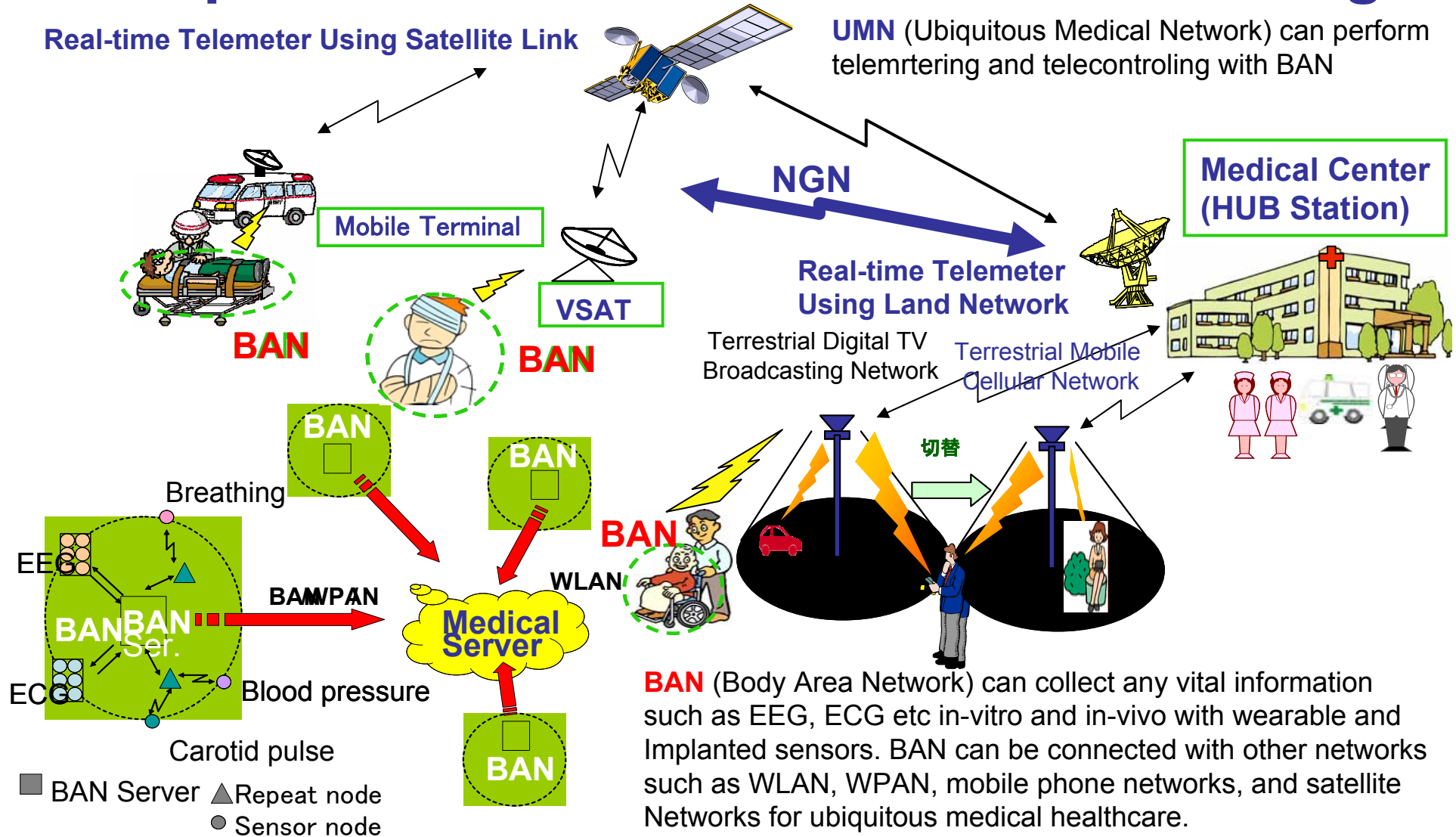
**YOKOHAMA NATIONAL  
UNIVERSITY**

**YOKOHAMA CITY UNIVERSITY**

**NICT**

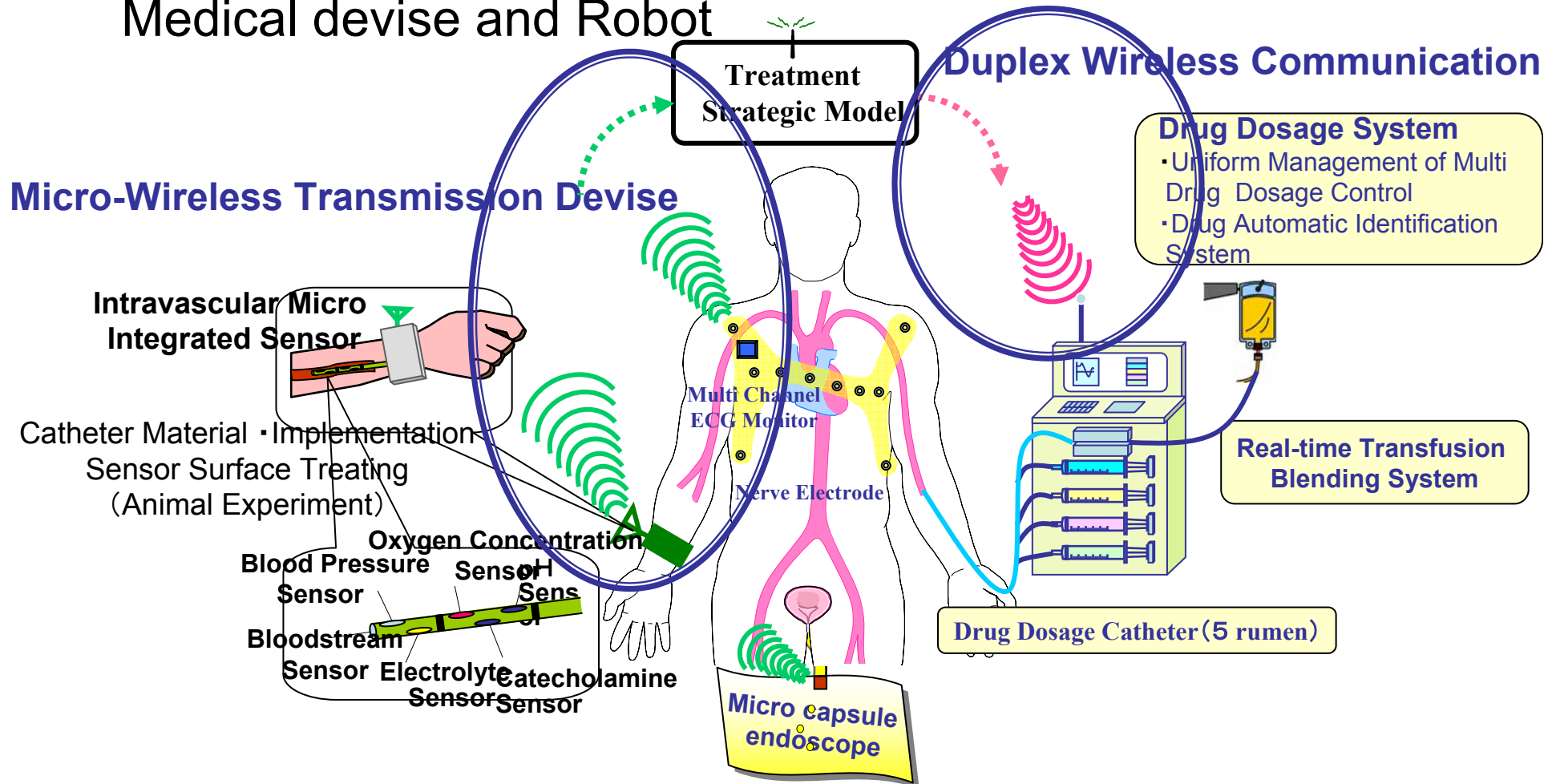


# Ubiquitous Medicine Based on Networking



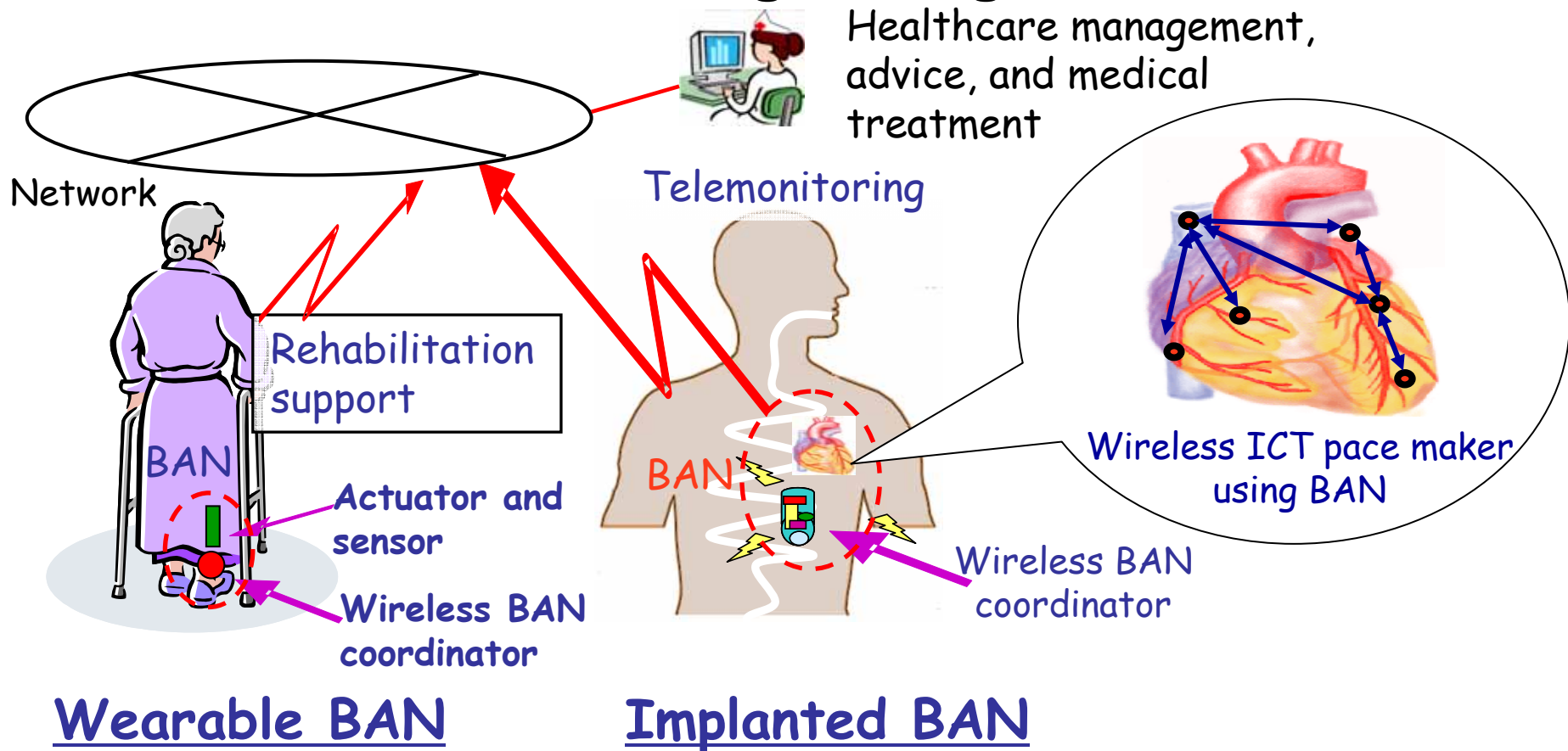
# Ubiquitous Medical Care System & Network

## Tele-metering of Vital Information and Tele-controlling of Medical device and Robot



# Medical Body Area Network (BAN)

Effective medical treatment is provided by vital information monitoring through wireless BAN.



# Requirements to Realize Ubiquitous Medical Care Using BAN

- To realize ubiquitous medical care using BAN, an advanced wireless ICT is required, which support energy efficiency, robustness against interference, high reliability & Safety for human body and so on.

## 1. Technology Requirement;

- **EMC** to protect human body & medical equipments against radio
- **Propagation analysis & channel modeling** of BAN
- High precision positioning & broadband communication with high reliability
- **Highly Secure network** to protect privacy of personal vital information

## 2. Regulation Requirement;

- **Guideline** to use wireless BAN safely **compliant to both FCC and FDA**
- **New frequency band** for medical use

## 3. Business Requirement;

- International **standard** to expand a market size
- Sophisticated **Business Models**

[http://green.ilcc.com/\\_ismict/](http://green.ilcc.com/_ismict/)

# ISMICT 2006

**2006 International Symposium on Medical Information and Communications Technology**

Hepburn Hall, Yokohama City University, Yokohama, Japan  
December 1-2, 2006

## FIRST CALL FOR PARTICIPANTS

The 2006 International Symposium on Medical Information and Communications Technology (ISMICT2006) will be jointly organized by Yokohama National University (YNU), Yokohama City University (YCU), and National Institute of Information and Communications Technology (NICT), and held at Hepburn Hall in Ekuura Campus, Yokohama City University, Yokohama, Japan, during De-

### General Chair:

Ryuji Kohno (YNU)

### Co-Chairs:

Shigeo Ohno (YCU)

Yasuo Kokubun (YNU)

Kohei Urano (YNU)

Hiroyo Ogawa (NICT)

### Technical Program

#### Committee Co-Chairs:

Tomio Inoue (YCU)

Jun-ichi Koizumi (YNU)

Hiroyuki Arai (YNU)

Tomoharu Nagao (YNU)

Huan-Bang Li (NICT)

<http://www.mict.ynu.ac.jp>



11-13 December, 2007  
University of Oulu, Finland

<http://www.ismict2007.org/>

FIRST CALL FOR PAPERS

The Second International Symposium on Medical Information and Communication Technology will be organised in Oulu, Finland, from Tuesday 11 December through Thursday 13 December, 2007, consisting of Tutorial and Networking day on 11 December and Symposium on 12-13 December. ISMICT 2007 is a continuation of the first ISMICT event organised in Yokohama, Japan in December 2006. As an answer to the fast growing interest in wireless medical ICT research, the symposium will concentrate on the challenge of achieving ubiquitous and pervasive communications as well as on the process development in healthcare and in welfare environments utilizing wireless solutions.

All the submitted papers need to be connected to the medical ICT context. Possible topics include, but are not limited to:

- Antennas & propagation for WBAN applications
- Cost effects in wireless healthcare or welfare
- eHealth
- Electric medical records
- Hardware architecture and implementation for medical ICT
- Homecare applications
- Hospital data networks
- Medical imaging and patient diagnostic systems
- Prevention and care management ICT networks
- Regulatory issues
- Rehabilitation applications
- Remote patient management
- Smart environments & ubiquitous technologies
- Systems & signal processing
- Telemedicine
- Wireless body area networks
- Wireless healthcare and welfare
- Wireless hospital
- Wireless medical measurements
- Wireless medical sensors

**IMPORTANT DEADLINES:**

Submission of full papers (max 5 pages): 2 September 2007  
Notification of decisions: 5 October 2007  
Camera ready copies: 4 November 2007

All accepted papers will be allowed twenty minutes for presentation and be included in the Symposium Proceedings. Instructions for paper authors will be published on the Symposium website in May 2007. University groups, research projects and programmes as well as companies are encouraged to participate in the Exhibition organised during the Symposium. Latest research results and new products and concepts can be introduced in the form of demonstrations or posters. Please contact Prof. Jari Iinatti for further details.

A special networking day and a tutorial day consisting on half day tutorials related to medical ICT context are also being planned for 11 December. Proposals for those are asked to be submitted by 2 September 2007.

Full papers and all proposals are asked to be submitted to [cwc-ismict@ee.oulu.fi](mailto:cwc-ismict@ee.oulu.fi).

Enquiries regarding paper submissions and general issues should be sent to: Prof. Jari Iinatti, Centre for Wireless Communications, P.O. Box 4500, FI-90014 University of Oulu, Finland  
Mobile: +358 40 532 9403, Fax: +358 8 553 2845,  
Email: [jari.iinatti@ee.oulu.fi](mailto:jari.iinatti@ee.oulu.fi) or [cwc-ismict@ee.oulu.fi](mailto:cwc-ismict@ee.oulu.fi).

**SYMPOSIUM LOCATION**

The Symposium will be held at the University of Oulu, Oulu, Finland.

**SPECIAL ATTRACTIONS**

The Symposium venue is located only 2.5 hours train trip from Rovaniemi, the Arctic Circle and Santa Claus Village. Before or after the Symposium You have an excellent opportunity to enjoy the Christmas spirit and meet Santa.

**COMMITTEES**

Conference General Chair: Prof. Ruyji Kohno, Japan  
Conference Technical Chair: Prof. Jari Iinatti, Finland  
Conference Technical Co-Chairs: Dr. John Farserotu - Switzerland, Prof. Timo Jäämä - Finland, Prof. Tapio Seppänen - Finland and Dr. Matti Hämäläinen - Finland

# Third International Symposium on Medical ICT (ISMICT2009)



**Montreal  
Canada**



WELCOME    CALL FOR PAPERS    CONFERENCE PROGRAM    SPONSORS & EXHIBITORS    REGISTRATION    GENERAL INFORMATION    CONTACT

## FIRST CALL FOR PAPERS

"Emerging wireless information technologies" & "Applications for healthcare" are the central themes for the Third International Symposium on Medical Information and Communication Technologies (ISMICT) to be held in Montreal, Canada, on 24 - 26 February 2009. It will be an international inter-disciplinary effort towards better understanding and predicating how wireless technologies will impact on medical practice.



### SCOPE

Healthcare is starting to adopt new technologies in wireless medical informatics that promise to overcome current healthcare-delivery limitations being experienced by both patients and physicians. This fast growing interest in technical innovation combined with today's medical knowledge explosion is creating demands on physicians, academics and patients, which require novel and broader paradigms in healthcare where wireless mobility is now expected everywhere.

Topics of interest will include, but are not limited to, the following:

- Cost or benefit considerations in wireless healthcare
- E-Health & citizen centered care
- Hardware architecture for medical & biomedical ICT (Information & Communication Technology)
- Networks for mobile telemedicine & biomedical informatics
- Use of location information in healthcare, including personnel, patient & asset tracking
- Sensing & transmission of vital signs by wireless networks
- Telemedicine, telediagnosis & telesurgery
- Wireless body area networks
- Wireless hospital design & construction
- Wireless-safety/patient-safety as part of hospital certification process
- Wireless security & privacy in healthcare
- Wireless medical & biomedical measurements
- Wireless patient tracking in disaster management

Special Sessions

Regular Sessions

Panels

### PAPER SUBMISSION

Authors are invited to submit full papers (see [www.ismict2009.org](http://www.ismict2009.org)) to the Technical Program Committee no later than September 26, 2008 according to the following schedule: .

- September 26, 2008 -Paper submission deadline
- November 28, 2008 -Paper acceptance/revision notice
- December 12, 2008 -Final paper due

### ORGANISATION

#### Co-Chairs

Bernard Segal PhD. McGill University, Jewish General Hospital, Canada  
 Jorge Pomalaza Ráez MSc, MUHC, Canada  
 George Sandor MD. University of Toronto, Canada

**Honorary:** Arthur Porter MD. Director General & CEO, MUHC, Canada

#### Technical Program Committee Co-Chairs

**Wireless:** Ioannis Psaromiligkos, PhD, McGill University, Canada  
**Clinical:** Allen Huang, MD, McGill University, MUHC, Canada

### INTERNATIONAL ADVISORY COMMITTEE

Prof. Ryuji Kohno, Japan  
 Dr. John Farserotu, Switzerland  
 M. Ari Pouttu, Finland  
 Prof. Jari Iinatti, Finland  
 Prof. Carlos Pomalaza Ráez, USA

### KEYNOTE & INVITED SPEAKERS

Please check back frequently for news about our insightful and thought-provoking keynote and invited speakers.

### ORGANISERS

**McGill University Health Centre (MUHC)**

#### Co-Organisers

McGill University  
 Concordia University  
 Centre hospitalier de l'Université de Montréal

24-26 Feb., 2009

McGill University, Montreal, Canada

<http://www.ismict2009.org/>

# FEELIT 2008

**International Workshop on Future Wellness and Medical ICT Systems  
9 September 2008**

In conjunction with



The 11th International Symposium on Wireless Personal Multimedia Communications

[www.cwc oulu.fi/workshops](http://www.cwc oulu.fi/workshops)

8-11 September, 2008

Lapland, Finland





# Conclusion

- Medical ICT Consortium coordinated by NICT with over 20 companies has been introduced because it has been approved as an official liaison of IEEE802.15. TG6.
- Medical ICT Consortium has contributed in R&D, Regulatory and Standardization of medical ICT systems such as BAN.
- Medical ICT Consortium would like to commit in any activities to make BAN successful in business and social services.