Connecting Health and Humans
Proceedings of NI2009
The 10th International Congress on Nursing Informatics

Edited by
Kaija Saranto
University of Kuopio, Kuopio, Finland
Patricia Flatley Brennan
University of Wisconsin-Madison, Madison, Wisconsin, USA
Hyeoun-Ae Park
College of Nursing, Seoul National University, Seoul, Korea
Marianne Tallberg
University of Kuopio, Kuopio, Finland
and
Anneli Ensio
University of Kuopio, Kuopio, Finland
Contents

Welcome Message from the Chair of IMIA-NI ........................ v
Robyn L. Carr

Preface .................................................................................. vii
Kaija Saranto, Patricia Flatley Brennan, Hyeoun-Ae Park,
Marianne Tallberg and Anneli Ensio

NI 2009 Committees ................................................................. ix

MILESTONES OF THE IMIA-NI HISTORY AND FUTURE DIRECTIONS

Milestones of the IMIA-NI History and Future Directions .... 3
Evelyn J.S. Hovenga

PAPERS

Clinical Workflow and Human Interface

Clinical Workflow

A Method to Improve a Job Process at a Hospital Using the “Unit Process
Flow Chart” ................................................................. 15
Ryoko Shimono, Satoko Tsuru, Yoshinori Iizuka, Shogo Kato,
Masahiko Munechika and Masaaki Kaneko

ICT Supporting Nurses and Physicians in Hospitals: Results of a Comparative
Survey in Austria and Germany ............................................. 20
Ursula Hübner, Christine Schaubmayr, Daniel Flemming, Björn Sellemann,
Christiane Aehlen and Elske Ammenwerth

Benchmarking by the RAFAELA Patient Classification System – A Descriptive
Study of Optimal Nursing Intensity Levels ............................. 25
Lisbeth Fagerström

Oulu Patient Classification Instrument Within Primary Health Care
Marianne Frilund and Lisbeth Fagerström ............................. 30

The Linkage of Nursing Assessment and Nursing Workload ................................. 36
Dieter Baumberger and Dirk Hunstein

Nursing Informatics; Is IT for All Nurses? ............................... 41
Carol Spiste Bond, Ruth Lewis and Ros Joy

Human Computer Interaction

The Online Managed Knowledge Network that Shares Knowledge for eHealth
in NHS Scotland ................................................................ 49
Kathy Dallest, Heather Strachan and Gillian Flett
Key Elements of Successful Care Process of Patients with Heart Symptoms in an Emergency Care – Could an ERP System Help?
Elina Kontio, Heikki Korvenranta, Heljä Lundgren-Laine and Sanna Salanterä

Nurses Using Futuristic Technology in Today’s Healthcare Setting
Debra M. Wolf, Amar Kapadia, Jessie Kintzel and Bonnie B. Anton

Scenario-Based Design of an ICT Platform for Mobile Information Services in Ambulatory Care Nursing
Bruno Rosales Saurer, Mercè Mueller-Gorchs and Christophe Kunze

Using Personas and Prototypes to Define Nurses’ Requirements for a Novel Patient Monitoring Display
Sven Koch, Amanda Sheeren and Nancy Staggers

From e-Health to Integrated Health Care: Theory and Practice
Vesna Prijatelj and Uroš Rajkovič

Management

Usability Testing of a Web-Based Tool for Managing Open Shifts on Nursing Units
Po-Yin Yen and Suzanne Bakken

Strategic Management of Health Care Information Systems: Nurse Managers’ Perceptions
Johanna Lammintakanen, Tuula Kivinen, Kaija Saranto and Juha Kinnunen

Observations on Sustainable and Ubiquitous Healthcare Informatics from Florence Nightingale
Helen J. Betts and Graham Wright

Review of an Automated Rostering System from a Nurse Manager’s Perspective
Fridolin Kerr and Yvonne Timony

Using Computers for Planning and Evaluating Nursing in the Health Care Services
Vilma Emužienė

Initiatives to Support the Emergence of Nursing Informatics
Michelle Honey and Susan Newbold

Point of Care

Is PDA Good for Complex Documentation in Healthcare?
Polun Chang, Chiao-Ling Hsu and Chung-Fu Lan

A Pilot Study Exploring the Clinical Benefits When Using a Mobile Clinical Assistant, the Motion C5 in Medical Wards
Val Baker and Marina Copping
How Different Technologies Can Fit Nursing Processes to Empower Staff and Increase Quality of Care. An Italian Case Study
Giovanna Bollini, Angela Lolli, Raffaele Zaza, Gianni Origgi, Silvia Bragagia, Paolo Locatelli and Nicola Restifo

Applying Human Factors Analysis to the Design of the Electronic Health Record
Jenny Elrod and Ida M. Androwich

Consumer Health Informatics and Personal Health Records

Patient Empowerment

HeartCare II: Patients’ Use of a Home Care Web Resource
Gail R. Casper, Patricia Flatley Brennan, Laura J. Burke and Daniel Nicolalde

Alternative Futures of Proactive Tools for a Citizen’s Own Wellbeing
Tarja Meristö, Hanna Tuohimaa, Sami Leppimäki and Jukka Laitinen

Cancer Patients’ Questions and Concerns Expressed in an Online Nurse-Delivered Mail Service: Preliminary Results
Trine Andersen and Cornelia M. Ruland

A Text Messaging Trial in Family Planning Clinics
Helen MacKenzie

Patient Portals: Survey of Nursing Informaticists
Lena Sorensen, Ryan Shaw and Erin Casey

The Elderly Demographic Time Bomb – Sharing the Load with the Active Ageing: Can eHealth Technologies Help Defuse It?
Brian Layzell, Bryan Manning and Stephen Benton

The Utilization of Electronic Patient Record in Pain Management from the Perspective of Nursing Management
Jukka Kesänen, Sara Asteljoki, Helena Pykälänäki, Sini-Vuokko Korpela and Liisa Montin

Patients Reading Their Health Records – What Emotional Factors Are Involved?
Torunn Wibe and Laura Slaughter

Integration of Self-Management Tools in Personal and Provider e-Health Records
Melinda Jenkins, Joslyn Levy, Ellen Cohen, Sunmoo Yoon, Jesse Singer and Farzad Mostashari

Personal Health Records

Reading Between the Numbers: The Potential of Patient Narrative
Kathy A. Johnson and Patricia Flatley Brennan

Evaluating Pain in Intensive Care
Hanna Suominen, Heljä Lundgrén-Laine, Sanna Salanterä and Tapio Salakoski
Challenges of Electronic Medical Record Extracts for a Personal Health Record
Kathleen Charters

Telenursing in Primary Health Care: Report of Experience in Southern Brazil
Valesca Pastore Dias, Regina Rigatto Witt, Denise Tolfo Silveira,
João Henrique Godinho Kolling, Paulo Fontanive,
Eno Dias de Castro Filho and Erno Harzheim

Building Knowledge for Poison Control: The Novel Pairing of Communication Analysis with Data Mining Methods
Mollie R. Poynton, Lee Ellington, E. Martin Caravati,
Barbara I. Crouch and Heather Bennett

Project HealthDesign: Enhancing Action Through Information
Patricia Flatley Brennan, for Project HealthDesign (Gail Casper,
Stephen Downs and Veenu Aulakh)

Health Information Technology
Clinical Practice

User Requirements for a Practice-Integrated Nurse-Administered Online Communication Service for Cancer Patients
Cornelia M. Ruland, Elin Borosund and Cecilie Varsi

Experiences with the Electronic Nursing Discharge Summary
Anne Kuusisto, Paula Asikainen, Heli Lukka and Kaarina Tanttu

The Role of IT in Facilitating the Centralised Co-Ordination of Agency and Bank Nursing Within an Acute Hospital
Suzanne Brown

Health Information Systems

A Study of Best Practices for Clinical Documentation System Implementation
Susan K. Newbold, Kathleen Kimmel, Randy Osteen,
Christel Anderson and Gina Sauls Morgan

Implementation of a Regional Health Information System – Overview of Selected Outcomes in One Hospital District
Tarja Suominen, Tiina Mäenpää, Paula Asikainen and Ilmari Rostila

Barriers to Implementation of a Continuity of Care Record (CCR) in HIV/AIDS Care
Rebecca Schnall, Michelle Odium, Peter Gordon and Suzanne Bakken

The Evaluation of Using Road-Map Guided Excel VBA Training to Promote Nursing Informatics in Taiwan
I-Ching Hou, Che-Wei Liu, Chiao-Ling Hsu and Polun Chang

Sociotechnical Analysis of a Neonatal ICU
Leanne Currie, Barbara Sheehan, Phillip L. Graham III, Peter Stetson,
Kenrick Cato and Adam Wilcox
Implementation of an Enterprise-Wide Electronic Health Record:
A Nurse-Physician Partnership

Nancy R. Daurio, Maxine Fielding and Patricia A. Cholewka

Technologies

Sending Electronic Nursing Discharge Messages Using the HL7 v3 Care Provision Standard

William Goossen

Four-Level Process Modeling in Healthcare SOA Analysis and Design

Juha Mykkänen, Esa Paakkanen and Marika Toivanen

Using Ruby on Rails™ to Develop a Web Interface: A Research-Based Exemplar with a Computerized Physical Activity Reporter

Jacquelyn W. Blaz and Patricia F. Pearce

The Development of a Quality-and-Multimedia-Based Health Web Information Searching Tool

Hui-Jou Chang and Polun Chang

E-Documentation as a Process Management Tool for Nursing Care in Hospitals

Uroš Rajkovič, Olga Šušteršič and Vladislav Rajkovič

Development of a Measurement Instrument for Nursing Documentation in the Patient Record

Wolter Paans, Walter Sermeus, Roos Nieweg and Cees Van Der Schans

Terminology, Standards and NMDSs

ICNP

Evaluation of the Content Coverage of SNOMED-CT to Represent ICNP Version 1 Catalogues

Hyeoun-Ae Park, Cynthia B. Lundberg, Amy Coenen and Debra J. Konicek

Towards a Standardized Representation to Support Data Reuse: Representing the ICNP Semantics Using the HL7 RIM

Hyeoneui Kim, Patricia Dykes, Perry Mar, Denise Goldsmith, Jeeyae Chot and Howard Goldberg

Representation of Patients’ Health Asset Concepts in the International Classification of Nursing Practice (ICNP) ®

Ann Kristin Rotegaard and Cornelia M. Ruland

The ICNP BaT – From Translation Tool to Translation Web Service

Ulrich Schrader

Terminology Use and Development

Models, Standards and Structures of Nursing Documentation in European Countries

Asta Thoroddsen, Kaija Saranto, Anna Ehrenberg and Walter Sermeus
Effects of Terminology Based Documentation on Nursing
Ulla-Mari Kinnunen, Kaija Saranto and Merja Miettinen 332

Preparing Nurses to Use Standardized Nursing Language in the Electronic Health Record
Maria Müller-Staub 337

The Use of Nursing Terminology in Electronic Documentation
Kristiina Häyrinen and Kaija Saranto 342

Formalizing Nursing Knowledge: From Theories and Models to Ontologies
Jane Peace and Patricia Flatley Brennan 347

Developing a Taxonomy and an Ontology of Nurses’ Patient Clinical Summaries
Sharon McLane, Adol Esquivel and James P. Turley 352

Intensive Care Admission and Discharge – Critical Decision-Making Points
Heljd Lundgren-Laine, Hanna Suominen, Elina Kontio and Sanna Salanterä 358

Interdisciplinary Communication in the ICU
Sarah A. Collins and Leanne M. Currie 362

Implementation of a Structured Nursing Documentation in a Special Care Unit
Pirjo Kaakinen and Kaarina Torppa 367

Patient Preferences and Quality of Care

Severity of Illness – Implications for Information Management by Patients
Ragnhild Hellesø, Johannes Eines, Lena Sorensen and May Solveig Fagermoen 373

Health Information Systems and Improved Patient Outcomes: Do Nurses See the Connection?
Jen Bichel-Findlay, Joanne Callen and Antony Sara 378

Individualizing Cancer Care with Interoperable Information Systems
Kathleen A. McCormick 383

Structuring Clinical Nursing Knowledge Using PCAPS – Patient Condition Adaptive Path System
Satoko Tsuru, Yoshinori Iizuka and Masahiko Munechika 391

Nurses Attitudes Towards the Informed Patient
Sivia Barnoy, Diana Volfin-Pruss, Malka Ehrenfeld and Talma Kushnir 396

The Impact of Health Information Technology (I-HIT) Scale: The Australian Results
Robyn Cook and Joanne Foster 400

Identification and Usability of Data-Based Nurse Staffing Indicators: A Pilot Study in Kuopio University Hospital
Taina Pitkäaho, Pirjo Partanen, Katri Vehviläinen-Julkunen and Merja Miettinen 405
Enhancement on Infectious Diseases Nursing Plan Information System

Mei-Lin Yeh, Te-Hui Hao and Chien-Yeh Hsu

“When Quality and Computers Meet” – Construction of a Computerized Nursing Quality Indicators’ Scale for Departmental Self-Monitoring and Improvement of Quality of Care

Rachel Cohen, Miri Fish, Henia Peri, Galia Niv, Koby Kedem, Eli Nir and Ilya Kagan

Patient Safety

Survey of Actual Conditions of Reasons for Nurse Calls: Comparing a Surgical Ward and a Medical Ward

Yukie Majima, Yoko Tamura, Yasuko Maekawa, Masao Ohira and Mitsuhiro Ikegawa

The Mat Study: Global Insight into the Medication Administration Process

Erika Elganzouri, Cynthia Standish and Ida Androwich

Development and Testing of an Observational Method for Detecting Medication Administration Errors Using Information Technology

Johanna I. Westbrook and Amanda Woods

Narrative Text in Structured Documentation of Medication Risks and Side Effects

Virpi Jylhä and Kaija Saranto

Impact of BCMA on Medication Errors and Patient Safety: A Summary

Sana Daya Marini and Arie Hasman

Development of a Computerized Observational Data Collection Tool for a Medication Error Study

InSook Cho, Hye-Ok Park, Yoon Jung Choi and Mi Hee Hwang

Framework for Preventing Accidental Falls in Hospitals – Management Plan for ADL, Medication and Medical Conditions

Shogo Kato, Satoko Tsuru and Yoshinori Iizuka

Fall TIP: Validation of Icons to Communicate Fall Risk Status and Tailored Interventions to Prevent Patient Falls

Ann C. Hurley, Patricia C. Dykes, Diane L. Carroll, John S. Dykes and Blackford Middleton

Investigation of the Load on the Lumbar Region in Nursing Technique’s Movements – Relation Between Twist and Surface Electromyogram

Yasuko Maekawa, Akira Shiozaki and Yukie Majima

Evidence-Based Practice and Decision Support

Moving to a Culture of Nurse as Knowledge Worker and a New Way of Knowing in Nursing

Lynn M. Nagle and Linda Yetman
Glycemic Control Through Computerized Subcutaneous Insulin Calculators

Lorrie K. Roemer, Emerson P. Borsato and Nathan C. Hulse

RAFAELA™ Patient Classification System as a Tool for Management

Hanna Aschan, Kristiina Jiittila, Lisbeth Fagerström, Anne Kanerva and Auvo Rauhala

Home Care Decision Support Using an Arden Engine – Merging Smart Home and Vital Signs Data

Michael Marschollek, Oliver J. Bott, Klaus-H. Wolf, Matthias Gietzelt, Maik Plischke, Moaaz Madiesh, Bianying Song and Reinhold Haux

eEvidence: Supplying Evidence to the Patient Interaction

Paula M. Procter, Min-Yen Kan, Siu Yin Lee, Siti Zubaidah, Wai Kin Yip, Jin Jhao, David Arthur and Goh Mien Li

An IT Innovation for Individualizing Care: Success with Clinicians Leading the Way

Mary L. Hook, Laura J. Burke and Judy Murphy

Development and Evaluation of ICNP-Based Electronic Nursing Record System

Young-Seon Lee, Kwang-Ok Park, Myoung-Rye Bong and Hyeoun-Ae Park

Documentation of Pain Management with TT- 2000+ in May 2008 Viewed from Clinical Nursing Practice

Sara Asteljoki, Jukka Kesänen, Helena Pykälämäki, Sini-Vuokko Korpela and Liisa Montin

Experience and Nurses Use of Computerised Decision Support Systems

Dawn Dowding, Rebecca Randell, Natasha Mitchell, Rebecca Foster, Carl Thompson, Valerie Lattimer and Nicky Cullum

Classification of Pressure Ulcers: A Systematic Literature Review

Jürgen Stausberg and Emanuel Kiefer

A Mobile Medicine Decision Support System for District Nurses

Pauline Johansson, Göran Petersson and Gunilla Nilsson

Frequency and Types of Alerts for Antibiotic Prescribing in a Neonatal ICU

Barbara Sheehan, Amy Chused, Phillip L. Graham III, Peter Stetson and Leanne Currie

Consumer and Professional Education

Competences

Web-Based Learning Resources – New Opportunities for Competency Development

Anne Moen, Kathrine A. Nygård and Torunn Gauperaa

Getting eHealth into Basic Nursing Education: Report of the RCN Information in Nursing Project

June Clark, Bernice Baker and David Baker
An Analysis of Published Nursing Informatics Competencies
   Heather Carter-Templeton, Ramona Patterson and Cynthia Russell

Psychometric Properties of the Self-Assessment of Nursing Informatics
   Competencies Scale
   Sunmoo Yoon, Po-Yin Yen and Suzanne Bakken

Nursing Informatics for Future Nurse Scholars: Lessons Learned with
   the Doctorate of Nursing Practice (DNP)
   Patricia A. Trangenstein, Elizabeth E. Weiner, Jeffrey S. Gordon and
   Donna McArthur

Australian Nursing Informatics Competency Project
   Joanne Foster and Julianne Bryce

Enhancing Nursing Informatics Competencies and Critical Thinking Skills
   Using Wireless Clinical Simulation Laboratories
   Patricia A. Cholewka and Bernard Mohr

Teaching Methodology

The Emerging Role of Educational Informatics
   Elizabeth E. Weiner and Patricia A. Trangenstein

Problem-Based Learning and e-Learning Methods in Clinical Practice
   Annikki Jauhiainen and Raija Pulkkinen

Educating a Health Terminologist
   Susan Matney, Judith J. Warren and Anne Casey

The Potential of 3-D Virtual Worlds in Professional Nursing Education
   Margaret M. Hansen, Peter J. Murray and W. Scott Erdley

Improving the Academic Programming Process in a School of Nursing Using
   Computational Modeling and Simulation
   Thomas R. Clancy, Connie White-Delaney and Margo Mako

Informatics Curriculum Integration for Quality and Safety Education for Nurses
   Amy J. Barton and Diane J. Skiba

The Development of an Incident Event Reporting System for Nursing Students
   Shwu-Fen Chiou, Ean-Wen Huang and Jen-Hsiang Chuang

Counselling of Problem Based Learning (PBL) Groups Through
   Videoconferencing
   Trond Indergaard and Berit Stjern

Using Social Software to Transform Informatics Education
   Diane J. Skiba and Amy J. Barton

Creating Experiential Learning Activities Using Web 2.0 Tools and
   Technologies: A Case Study
   Juliana J. Brixey and Judith J. Warren
Validation of the Impact of Health Information Technology (I-HIT) Scale:
An International Collaborative
Patricia C. Dykes, Ann C. Hurley, Suzanne Brown, Robyn Carr,
Margaret Cashen, Rita Collins, Robyn Cook, Leanne Currie,
Charles Docherty, Anneli Ensio, Joanne Foster, Nicholas R. Hardiker,
Michelle L.L. Honey, Rosaleen Killalea, Judy Murphy, Kaija Saranto,
Joyce Sensmeier and Charlotte Weaver

Strategies and Methods for HIT Training

Health Informatics: Moving from a Discipline to a Science
James P. Tarley

Evaluation of a Training Program for Counselors in Contraception and
Prevention of STIs and a Website-Based Support System
Shin Narita, Satoko Tsuru, Sachiko Suzuki, Rika Kudo, Mikiko Nonoyama,
Hideo Dannoue and Toshiko Endo

Using Second Life to Enhance ACCEL an Online Accelerated Nursing BSN
Program
Stephanie Stewart, Dawn Pope and Debra Duncan

An Empirical Study of End User Computing Strategy in Promoting the Nursing
Informatics in Taiwan
Che-Wei Liu, I-Ching Hou, Ming-Hsiang Tu and Polun Chang

The Impacts of Informatics Competencies and User Training on Patient
Information System Implementation
Kaisa Lemmetty, Kristiina Häyrinen and Sirpa Sundgren

Information Literacy: Using LISTEN Project Strategies to Equip Nurses Worldwide
Ramona Patterson, Heather Carter-Templeton and Cynthia Russell

National eHealth Initiatives

Structured Terminologies in Clinical Information Systems: Implementation
Through Collaboration
Robert E. Haskell, Nicholas R. Hardiker, Tera J. Watkins,
Cynthia B. Lundberg, Jane M. Brokel and Marisa L. Wilson

An Electronic Portal to Support Using Information to Improve Healthcare
Heather Strachan and Kathy Dallest

Capturing Business Requirements for the Swedish National Information
Structure
Karin Kajbjer and Catharina Johansson

Translation of SNOMED CT – Strategies and Description of a Pilot Project
Gunnar O. Klein and Rong Chen
Creating a Governmental Policy Framework for Adoption of an Electronic Health Record  
   *Mary Etta C. Mills and Susan K. Newbold*  
   678

Capturing Nursing Information in the United Kingdom Through Use of a Conceptual Model  
   *Dave Lloyd, Pauline Tang, June Clark, Jan Hesketh, Anthony Paget and Bernice Baker*  
   683

The Finnish National eHealth Archive and the New Research Possibilities  
   *Teemupekka Virtanen*  
   688

Leveraging Technology for Research  
   *Frances Vlasses, Mary Malliaris, Ida Androwich, Barbara Caspers and Mary Dominik*  
   692

**POSTERS**

**Clinical Workflow and Human Interface**

A Leadership Initiative to Improve Paraprofessional Communication of Changes in Patient Status  
   *Moreen Donahue, Matthew Miller, Lisa Smith, Patricia Dykes and Joyce J. Fitzpatrick*  
   701

Developing a Cost-Effective Home Care Management Support System for Small Nursing Homes in Taiwan  
   *Ming-Hsiang Tu and Polun Chang*  
   703

Introducing Nursing Informatics and Innovation into a Professional Practice Model  
   *Mary Kennedy*  
   705

Implementation of Information Technology in Nursing Practice – Challenge for Management in Psychiatric Nursing  
   *Marita Koivunen, Heli Hätönen and Maritta Välimäki*  
   706

The Evaluation of the Nurses’ Work Performance After Nursing Information System Implementation in One Medical Center in Taiwan  
   *I-Ching Hou, Hui-Chu Yu, Yuen-Jiau Hwang, Jimmy Cheng, Rong-Syuan Wu and Polun Chang*  
   708

Using Electronic Patient Record with PDA, Benefits and Nursing Staffs’ Know-How to Use Technology  
   *Satu Malmqvist*  
   709

The Effect of the Emotional Intelligence on Job Satisfaction  
   *Emine Sener, Özlem Demirel and Kader Sarlak*  
   710

Examination of Nursing Dependency for Admission Fee and Measurement of Nurses’ Work Load for Nursing Care  
   *Yumiko Uto, Chiaki Torigoe, Sechiko Mukaikubo and Ichiro Kumamoto*  
   712
Nursing Point of Care Documentation for the Evaluation of Human Quality
LuAnn Whittenburg

Development of the Incident Reporting System Using the Nursing Administrative Database
Ryoma Seto, Kumiko Ishigami, Toshiko Fukui, Kunihiko Muta, Masao Ohira, Kazuya Tsuchiya, Hironaga Okawa and Takeshi Ozaki

Consumer Health Informatics and Personal Health Records

Home Telehealth Electronic Health Information Lessons Learned
Kathleen Charters

Implementation of a State Wide Online Personal Health Care Portfolio
Thomas H. Fauchald

The Use of Mobile Computational Technology in the Nursing Process: A New Challenge for Brazilian Nurses
Dircele Jussara Sperandio and Yolanda Dora Martinez Evora

The Assessment of the Mobile Nursing Cart in Hospital Adopting
Hui-Chu Yu, I-Ching Hou and Yueh-Jiau Hwang

Developing Internet-Based Health Services in Health Care Organizations
Salme Leskinen, Kristiina Häyrinen, Kaija Saranto and Anneli Ensio

Second Life and Health Information
Juliana J. Brixey and James P. Turley

The Essential Elements of Caring When Building Innovative Service in South-African Township
Pirkko Kouri and Marja Gröhn-Rissanen

Latina Breast Cancer Survivors Informational Needs: Information Partners
Lena Sorensen, Maria Gavier and Ragnhild Hellesø

Between Personal Health Record Website and Portable Medical Health Record: An Online Data Transformation Interface
Yi-Hua Wu, Yian-Zhi Li and Yu-Chuan Li

Analyzing and Modeling of the Web-Based Self Care Record System for Hypertension Patients – Focused on Blood Pressure and Drug Management
Jang Hye Jung and Kim Nam Hyun

When and Why Do People Post Questions About Health and Illness on Web2.0-Based Q&A Sites in Japan
Kazuhiro Nakayama, Arisa Nishio, Yukari Yokoyama, Yoko Setoyama, Taisuke Togari and Yuki Yonekura

Yumi Sakyo, Kazuhiro Nakayama, Hiroko Komatsu and Yoko Setoyama

Empowerment Among Athletes – An e-Survey Design
Bodil Pallesen, Axel Engberg and Anders Barlach
Personal Health Notes: Lessons Learned
Ragnhild Hellesøe, Lena Sorensen and Laura Slaughter

735

Health Information Technology

Evaluation of the Completeness of the Nursing Process for Patients Having Gastrointestinal Surgery Using Electronic Nursing Records
Ihn-sook Park, Cheong-suk Yoo, Young-hee Joo, Kyung-shun Woo, Woan-heui Choi, Hyun-sook Kang, Mi-ra Jung, Hee-jin Kim, Su-hee Lee, Seon-yeong Ahn and Mi-ok Park

739

Analysis of the Gap Between Nurses' Expectations and Satisfaction on a Home-Made Discharge Planning System
Chiao-Ling Hsu, Ming-Lee Chang and Polun Chang

741

What Makes Nurses Perceive Differently on the Usability of Same System?
Hsiang-Fen Lai and Polun Chang

743

Predictive Modeling of Dental Pain Using Neural Network
Eun Yeob Kim, Kun Ok Lim and Hyun Sill Rhee

745

RFID and Medication Care
Antti Lahtela and Kaija Saranto

747

Health Care Information Systems – The Outcomes of the Integrated Use of Health Information
Tiina Mäenpää, Paula Asikainen, Ilmari Rostila and Tarja Suominen

749

An Evaluation Study on the Nurse Shifting Information System
Bi-Lian Chen, Shaio-Jyue Lu and Man-Ti Wang

751

A Strategy for Preparing Contents for a Computerized Documentation System
Hyeoneui Kim, Patricia Dykes, Denise Goldsmith and Sally Millar

752

Developing a Clinical Informatics System Which Supports a Model of Partnership Among Caregivers, Patients, and Families
Daniel F. Bergeron and Kristiina Hyrkas

754

Connecting Humans and Health Through Health Information Exchange
Joyce Sensmeier and Elizabeth Casey Halley

756

Requirements Analysis for HL7 Message Development in Poison Control Center
Jia-Wen Guo, Mollie Poynton, Susan Matney, Lee Ellington, Barbara I. Crouch and E. Martin Caravati

758

Terminology, Standards and NMDSS

Nurses' Experiences of and Opinions About Using Standardized Care Plans in Electronic Health Records
Marie Fogelberg Dahm and Barbro Wadensten

763
The Application of Data Mining Skill on Identifying Critical Factors in the Web-Based Incident Reporting System

Ting-Ting Lee

Comprehensiveness of EPR Documentation by Home Care Nurses

Edith Roth Gjevjon and Ragnhild Hellesø

A Study of Staff's Satisfaction and Documentation Completeness on Using a Nursing Information System

Min Chang, Ting-Ting Lee, Kuan-Chia Lin, Wey-Wen Jiang, Juin-Shu Lin, Yanmay Chang and Shen-Yueh Tang

The Development of the Nursing Observation Master File

Chitose Watanabe, Satoko Tsuru, Makiko Uchiyama, Eiko Okamine, Aya Takada, Kikumi Inoue, Miwa Asada and Hideo Dannoue

The Development of the Nursing Action Master File

Mutsuko Nakanishi, Satoko Tsuru, Chitose Watanabe, Manami Inoue, Makiko Uchiyama, Sawako Kawamura, Miki Takami, Kyoko Ishigaki and Yumiko Uto

The Development of Method for Continuous Improvement of Master File of the Nursing Practice Terminology

Satoko Tsuru, Eiko Okamine, Aya Takada, Chitose Watanabe, Makiko Uchiyama, Hideo Dannoue, Hisae Aoyagi and Akira Endo

Identifying Unit-Specific Nursing Demands Using Nursing Interventions Classification (NIC)

Sookyung Hyun, Pam de Cordova, Linda Green, Kwanza Price, Trish Quinlan and Patricia W. Stone

Cross-Mapping the Finnish Classification of Nursing Diagnosis, Nursing Interventions and the Oulu Patient Classification

Pia Liljamo and Pirjo Kaakinen

Nursing Standardized Documentation in Kuopio University Hospital

Päivi Hoffrén, Kirsi Leivonen and Merja Miettinen

Congruence Between Nursing Problems in Nursing Care Plans and NANDA Nursing Diagnoses

Cecilie Varsi and Cornelia M. Ruland

Enhancement of Interoperability of Disaster-Related Data Collection Using Disaster Nursing Minimum Data Set

Christine Spisla

An Ontological Approach for Translating the ICNP

Kimikazu Kashiwagi and Masayo Kashiwagi

Omaha System Data: Methods for Research and Program Evaluation

Karen A. Monsen, Karen S. Martin, Jean R. Christensen and Bonnie L. Westra
An Exploratory Study on the Health Information Terms for the Development of the Consumer Health Vocabulary System

Jeongeun Kim, Jeeyoung Joo and Yoonju Shin

The Adoption of a Controlled Nursing Vocabulary in Finnish Scientific Journals

Kristiina Junttila, Eila Pekkala, Kaija Saranto, Anneli Ensio and Marianne Tallberg

Developing a Model for Elderly Care Plans

Shogo Kato, Satoko Tsuru and Yoshinori Iizuka

Exploring the Encodability of Comprehensive Discharge Information with the Unified Modeling Language

Jeeyae Choi, Lois Schuster, Debra Frost and Ann Marie Laronca

The Development and the Trial of the Nationally Standardized Electronic Nursing Documentation (NSEND) in Southern Savos Hospital District

Eija Kivekäs and Raija Hakala-Ewing

Patient Preferences and Quality of Care

Trial to Structuralize and IT-Systematize Home-Visit Nursing Based on PCAPS for Quality Improvement

Kesami Sano, Satoko Tsuru, Mariko Matsuki, Shogo Kato, Ryuichi Yamamoto, Sawako Kawamura, Masaharu Ito, Mari Kimata, Masahiko Munechika and Yoshinori Iizuka

Monitoring Collaborative Practice Guideline Access: Initial Steps to Define Effect on Patient Outcomes

Sharon M. Bigelow and Lorrie K. Roemer

The Systematic Review of Effective Interventions to Promote Collaboration Between Families and Social and Health Services

Nina Halme, Marja-Leena Perälä, Camilla Laaksonen, Teija Hammar and Maisa Toljamo

Electronic Standard Care Plans of Home-Visit Nursing for Patients of Euronal Intractable Diseases Based on PCAPS

Mariko Matsuki, Satoko Tsuru, Kesami Sano, Shogo Kato, Junko Yamazaki, Akemi Izumiyama, Satoko Yamaji, Satsuki Tanahashi, Ryuichi Yamamoto and Sawako Kawamura

Patient Safety

Usability Testing of a Falls Prevention Toolkit for an Inpatient Acute Care Setting

Denise Goldsmith, Lyubov Zuyev, Angie Benoit, Frank Y. Chang, Jan Horsky and Patricia Dykes
What Does Your IV Smart Pump Infusion Data Tell You About IV Clinical Practice and Patient Safety? 803
Elizabeth Starenkyj, Patti Wolfe, Tim Hoh, Nadia Mamerand John Soliven-Llaguno

Applying RFID Systems to Improve the Correctness of Newborn Identity Reconfirmation 805
Ming-Hui Ou Yang, Hui Ling Huang and Shan Huang

Transforming the Fall-Injury Risk Assessment Tool from Paper to Electronic 807
Kristina Hyrkas, Daniel Bergeron, Joanne Chapman, Deborah Bachand and Leanne Currie

Detection of Possible Medication-Related Errors in Hypertension Plans Documented Using a PDA-Based APN Clinical Log 809
Nam-Ju Lee and Suzanne Bakken

Comparison of Fall Rates from Different Resources: A Self Report System and an Electronic Medical Record System 810
InhSook Park, InSook Cho and Eun Man Kim

Identifying Routine Surge for Poison Control Telephone Response Systems 811
Seth Latimer, Lee Ellington, Amiee Maxwell, Mollie Poynton, E. Martin Caravati, Barbara I. Crouch and Heather Bennett

Evidence Based Practice and Decision Support

A Clinical-Decision Support System for the Nursing Process in the ENR 815
Myoung-Rye Bong, Young-Seon Lee, Kwang-Ok Park, Young-Hee Ahn and Chun-Yong Kwon

Nursing Informatics Implications from a Study of Unmet Nursing Care Needs 817
Robert Lucero

Five Elements of Music Therapy Research on the Influence of Emotion and Meridian 818
Pei Pei Cheng and Li Liu

Content and Functional Assessment of a HIV/AIDS Tailored Web-Based Symptom Self Assessment and Self Management Tool 820
Dean Wantland

Education for Consumers and Professionals

The Research of the Information Literacy and Its Related Factors of Clinical Nurses Poster 825
Li-chuan Hung and Shou-Hui Lin

Development of Educational Software for Teaching Nursing Management 826
Yolanda Dora Martinez Évora, Marcia Regina A.C. Melo, Andréa Bernardes and Carlos Alberto Seixas
Educational Effect of Nursing Process Exercises in Psychiatric Nursing, Using the Computer Assisted System for Learning

Sumiko Kobayashi, Kazue Hayashi, Junko Okumora, Misako Sikiura and Yukuo Isomoto

Learning Support System for Nursing Process on Development of Assessment Abilities

Misako Sugiura, Sumiko Kobayashi, Junko Katsuragawa, Yayoi Watanabe, Seiichirou Takami, Kazue Hayashi, Junko Okumura, Mitsuko Miyazawa, Yoshi Kobayashi and Yukuo Isomoto

Nationwide Survey on the Introduction of Nursing Diagnosis at Nursing Schools in Japan

Nobuko Oya, Eiko Kawaharada, Yukie Kozawa and Mieko Takeshita

Efficiency of Blended E-Learning Classes Using Nursing Practice Example

Yumiko Nakamura, Yukie Majima, Satoshi Horii, Satomi Mizuno, Kyoko Izumi, Kiyomi Kuru and Yoichiro So

Identification of Subject Areas in Nursing Informatics for the Nursing Manager Curriculum

Sachiko Shoubuzawa, Kazushi Yamanouchi and Toshiaki Takeda

Developing Competences and Use of the Finnish Model of Documentation of Nursing Care – R&D Project eNNI

Elina Ora-Hyytiainen, Helena Ikonen and Outi Ahonen

Caregivers’ Knowledge and Skills: Which Reality?

Manuela Teixeira and Joana Pinto

Teaching Undergraduate Nursing Students Renal Care in a 3D Gaming Environment

Joanne Foster and Catherine Dallemagne

Interactive eLearning – A Safe Place to Practice

Elisabeth Einarson, Anne Moen, Ragnhild Kolberg, Gry Flingtorp and Eva Linnerud

Is Computer Assisted Learning Among Nurses or Nursing Students More Effective than Traditional Learning? – A Mini-Review

Mari Lahti and Maritta Välimäki

Second Life: Not Your Conventional Simulation

Judith J. Warren and Juliana J. Brixey

HOHNEU: E-Learning in Occupational Health Education

Peter Kokol and Helena Blazun

Active Learning in Later Life Period

Helena Blazun and Peter Kokol

Development of E-Learning System for Patient Education of Diet and Radiation Safety

Kyung-Hoon Hwang, Hyung-Ji Lee, Duck-Joo Choi, Min Kyung Lee and Wonsick Choe
A Web-Based Training System for Elevating Nursing Students' Risk Sensitivity
Yoko Muranaka, Miyuki Adachi, Yumiko Toda, Keiko Hattori and Yukie Yoshitake

How Do Patients Evaluate Their Education? – A Comparison of Two Education Methods
Katja Heikkinen, Sanna Salantera and Helena Leino-Kilpi

Strategies and Methods for HIT Training

Nursing Informatics: Scope and Standards of Practice
Carol J. Bickford

Using Computerized Tailored Questionnaires for Symptom Assessment and Coping Strategies Evaluation in Nursing Research
Jia-Wen Guo, Bob Wong and Susan Beck

Standardized Nursing Documentation – Developing Together
Elina Rajalahti and Kaija Saranto

Reducing Health Disparities and Improving Patient Safety and Quality by Integrating HIT into the Columbia APN Curriculum
Suzanne Bakken, Leanne Currie, Sookyung Hyun, Nam-Ju Lee, Ritamarie John, Rebecca Schnall and Olivia Velez

The Purposeful Integration of an Academic Electronic Health Record Across Nursing Curricula
Sally Fauchald, Tessie Bushey, Beth Donahue, Dianne Johnson and Siobhan McMahon

Education for Japanese Informatics Nurses
Kazushi Yamanouchi and Katsumasa Ota

National eHealth Initiatives Across the Globe

From Vision to Implementation: The Illinois Rural Health Initiative (IRHI)
Margaret Ross Kraft, Alan Kraus and Doug Power

Nursing Informatics in Sweden – The Agenda for the Future
Anna Ehrenberg, Ewa Angsмо, Margareta Ehnfors, Jan Florin, Marie Fogelberg-Dahm, David Liljequist, Lars Midboe, Gunilla Nilsson, Gunnel Wärn-Hede and Gertrud Östlinder

Nurse Informaticians in Finland – Who Are They and What Are They Doing?
Kaija Saranto, Kristiīna Junttila, Outi Ahonen, Anneli Ensio, Rauha Heikkilä, Susanna Lehtomäki and Pia Liljamo

Student Poster Competition

Using Change Theory to Examine the Nursing Informatics Development in Taiwan
Chi-Szu Cho and Polun Chang
Development Opportunities for Nursing
Danuta Ciesla and Katri Vehviläinen-Julkunen

The Quality Report of National Ever-Awarded Health Websites in Taiwan
Li-ping Fang and Polun Chang

Clinical Decision Support Systems to Prevent and Treat Pressure Ulcers and Under-Nutrition in Nursing Homes
Mariann Fossum, Solbjørg Terjesen, Marit Ødegaard, Unni Sneltvedt, Lene Andreassen, Margareta Ehnfors and Anna Ehrenberg

Developing a Visualized Patient-Centered, Flow-Based and Objective-Oriented Care Path of Cardiac Catheterization Examination
Ming Chuan Kuo and Polun Chang

What is the Out-Patient Nurse Thinking – From Hand-Written to Information System Uses
Pei-Fen Lee

Who Attended the NI Training Programs in Taiwan?
Che-Ju Lin and Polun Chang

The Effect of a Standardized Form in Guiding Communication Between Peers During the Hand-Off of Patients in a Hospital Setting
Andrew Phillips

Peer Support from Online Community on the Internet Among Patients with Breast Cancer in Japan
Yoko Setoyama, Kazuhiro Nakayama and Yoshihiko Yamazaki

Structuring Development Process of Learning Knowledge and Procedure in Healthcare Using the Unit Process Flow Chart
Ryoko Shimono, Satoko Tsuru, Shogo Kato, Shin Narita, Masahiko Munechika and Yoshinori Jizuka

End-User Developed Workflow-Based Hemodialysis Nursing Record System
Hsin-Ling Tai, Hsiu-Wen Lin, Suh-Huei Ke, Shu-Ai Lin, Chiung-Chu Chang and Polun Chang

Visualizing Simulated Learning Experiences Through the Use of Informatics Tools
Teri L. Thompson and Judith J. Warren

Subject Index

Author Index