International Classification for Nursing Practice (ICNP®)

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Director, ICNP Programme
International Council of Nurses
Overview

- Why we need an ICNP
- What is ICNP?
- How the ICNP Programme works
International Council of Nurses (ICN)

A FEDERATION OF NATIONAL NURSES ASSOCIATIONS

- Founded in 1899
- Headquarters office in Geneva
- Membership of 129 nurses associations, each representing one country
- www.icn.ch
ICN's Mission

To represent nursing worldwide, advancing the profession and influencing health policy.
ICNP Vision

ICNP is an integral part of the global information infrastructure informing health care practice and policy to improve patient care worldwide.
Motivating Forces to Advance Data and Terminology Standards

- Using computer-based information systems in clinical settings and Electronic Health Records (EHRs)
- Supporting evidence-based practice
- Globalization
System Integration & Data Sharing - Electronic Health Record (EHR)

Health care ministries

Delivery settings e.g., hospital, pharmacy

Researchers

Consumers at:
- Home
- School
- Work

Health care providers, e.g.
- NURSES

EHR
Aim for Interoperability

- Interoperability: The ability of two or more systems, or components, to exchange information and to use the information that has been exchanged (IEEE, 1990)

- Interoperability is central to the acquisition, storage, and use of information in the health and biomedical domain
How Do We Achieve Interoperability?

Standards, Standards, Standards!

- Standards: around data
  - Structures, processes, and outcomes

- Standards: around information
  - Messaging
  - Context

- Standards: around knowledge
  - Representation and execution
Knowledge Cycle
(Slide adapted from Chute & Harris, 2006)

Data acquisition & storage

Transactional Databases

Analytic Data Repositories

Research & Evaluation

Interoperability & Sharable Semantics

Evidence Base to Develop

Patient Care Management

Execute Knowledge & Evaluate Effectiveness

Expert Systems

Inform

Clinical Guidelines

Knowledgebases
USING NURSING DATA FROM PRACTICE TO PRACTICE
Where do we start with nursing data standards?

Foundational work in nursing terminology development:

- NURSING MINIMUM DATA SET
- NURSING CLASSIFICATION SYSTEMS
Examples -
American Nurses Association Recognition

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCC</td>
<td>Clinical Care Classification</td>
</tr>
<tr>
<td>NANDA-I</td>
<td>North America Nursing Diagnosis Association - International</td>
</tr>
<tr>
<td>NIC</td>
<td>Nursing Intervention Classification</td>
</tr>
<tr>
<td>NOC</td>
<td>Nursing Outcome Classification</td>
</tr>
<tr>
<td>OS</td>
<td>Omaha System</td>
</tr>
<tr>
<td>LOINC</td>
<td>Logical Observations Identifiers, Names, Codes</td>
</tr>
<tr>
<td>PNDS</td>
<td>Perioperative Nursing Data Set</td>
</tr>
<tr>
<td>NMMDS</td>
<td>Nursing Management Minimum Data Set</td>
</tr>
<tr>
<td>SNOMED-CT</td>
<td>Standardized Nomenclature for Medicine-Reference Terminology</td>
</tr>
<tr>
<td>ICNP</td>
<td>International Classification for Nursing Practice</td>
</tr>
</tbody>
</table>
Nursing Terminology Challenges

- Nursing is huge.
- Nursing is varied.
- Nursing changes.
- Multiple nursing terminologies
Multiple Nursing Vocabularies?
ICNP Version 1.0
ICNP Version 1.0
A Unified Nursing Language System

Knowledge deficit
Déficit de la Connaissance
Deficit di Conoscenza
Lack of Knowledge

Necesidad Educativa

지식 부족

ErlernencNotwendigkeit

Knowledge Deficit
10011042
NANDA – map to ICNP

Imbalanced Nutrition: More than body requirement (00001)

Feeding Self-care Deficit (00102)

- Excess Food Intake (Overeating) (10000682)
- Lack of Ability to Feed Self (10000973)
What is ICNP VERSION 1.0?

- Unified Nursing Language System
- Compositional terminology that
  - Allows new vocabulary development
  - Accommodates existing vocabularies (cross-mapping)
  - Identifies relationships among concepts and vocabularies (reference terminology)
ICNP is used to Represent

- Nursing Diagnoses
- Nursing Interventions
- Nursing Outcomes
Domain Content
ICNP Version 1.0 - Multiple Purposes
- Multiple Representations

- To identify similarities and differences between different representations in order to compare and combine data from different sources (OWL in Protégé)

- To facilitate the development of local vocabularies that are derived from ICNP® (7-Axis Model)

- To fill a practical need in building electronic patient record systems using ICNP® with all of the benefits of being part of a unified language system (Catalogues)
ICNP

Version 1.0, 7-Axis Model, and Catalogues

ICNP® 7-Axis Model

Catalogues
ICNP

*Version 1.0, 7-Axis Model, and Catalogues*

ICNP® 7-Axis Model

Catalogues
ICNP Version 1.0

Developed using advanced technologies and terminology tools.

- Explicit definitions can be understood by computers
- Greater detail (or granularity)
- Conforms with other standards and criteria:
  - ISO standards (e.g. ISO 18104:2003)
  - HL7 registered
  - NLM plans to add to UMLS
- Responsive as an “International” standard
"ACUTE PAIN"

Perception
- Pain
-- Acute pain

Focus
- Pain

Time
- Acute

"SUDDEN PAIN"

Perception
- Pain
-- Sudden Pain

<owl:Class rdf:ID="ActualAcutePain">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <owl:Class rdf:about="#Pain"/>
        <owl:Restriction>
          <owl:someValuesFrom rdf:resource="#Acute"/>
          <owl:onProperty>
            <owl:ObjectProperty rdf:about="#hasOnset"/>
          </owl:onProperty>
        </owl:Restriction>
        <owl:Restriction>
          <owl:someValuesFrom rdf:resource="#Actual"/>
          <owl:onProperty>
            <owl:ObjectProperty rdf:about="#hasPotentialityState"/>
          </owl:onProperty>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
</owl:Class>
ICNP

Version 1.0, 7-Axis Model, and Catalogues
ICNP: COMPOSITIONAL TERMINOLOGY

MULTI-AXIAL STRUCTURE:
Terms from multiple axes can be combined to form nursing diagnoses, outcomes, and interventions.
ICNP Version 1.0  7-Axis Model
ICNP Focus Axis

- Client
- Focus
- Location
- Judgement
- Time
- Means
- Action
ICNP Focus Axis

- Process
  - Behavior
    - Interactive Behavior
      - Aggressive Behavior
        - Infanticide
        - Abuse
    - Self-Performing Activity
  - Body Process
  - Community Process
  - Social Process
  - Psychological Process
  - Environmental Process

- Attachment Behavior
- Sexual Behavior
ICNP® Version 1

ICNP Explorer

- Dizziness
- Hallucination
- Hearing
- Hunger
- Illusion
- Itching
- Kinaesthesia
- Nausea
- Nightmare
- Pain
  - Cancer Pain
  - Cutaneous Pain
  - Labour Pain
  - Musculoskeletal Pain
  - Neurogenic Pain
  - Pain During Urination
  - Vascular Pain
  - Visceral Pain
  - Perceived Constipation
  - Sight
  - Smell
  - Suspicion
  - Symptom

International Classification for Nursing Practice
Version 1.0

Code: 10013950
Name: Pain

Description
Perception with the specific characteristics: Increase in unpleasant sensation in the body, subjective report of suffering, grimace, alteration in muscle tone, self-protective behaviour, narrowed focus of attention, altered time perception, withdrawal from social contact, impaired thought process, distraction behaviour, restlessness, and loss of appetite.

Statement Name: Acute pain
Statement: Acute Pain
Statement Type: Nursing Diagnosis
ICNP is used to Represent

- Nursing Diagnoses
- Nursing Interventions
- Nursing Outcomes
### Guidelines for composing ICNP Diagnoses, Outcomes, & Interventions

<table>
<thead>
<tr>
<th>Guideline for Composing Nursing Diagnosis or Outcome</th>
<th>Guideline for Composing Nursing Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Must include a term from the <strong>Focus Axis</strong></td>
<td>1. Must include a term from the <strong>Action Axis</strong></td>
</tr>
<tr>
<td>2. Must include a term from the <strong>Judgement Axis</strong></td>
<td>2. Must include at least one <strong>Target term</strong>. A Target term can be a term from any axes except Judgement Axis.</td>
</tr>
<tr>
<td>3. May include terms from other axes as needed</td>
<td>3. May include terms from other axes as needed</td>
</tr>
</tbody>
</table>
ISO 18104: 2003

- Health Informatics - Integration of a reference terminology model for nursing
- Published as an International Standard in 2003
Reference Terminology Model

- Explicit representation of a concept system
  - components, component functions, and the relationships among them (how these components are put together and how they will interact).

- ISO 18104 - Determines the form and composition of nursing statements for diagnoses and interventions
ISO DIS 18104
Reference Terminology Model for Nursing Diagnoses

dimension

focus
  timing
  has site

judgment
  degree
  potentiality
  acuity
  timing
  has subject of information

subject of information

is perspective on

is applied to

has subject of information
### ICNP Nursing Diagnosis

**Risk for Medication Side Effects**

<table>
<thead>
<tr>
<th>Select Axes</th>
<th>ICNP ® Terms</th>
<th>Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus</td>
<td>Medication Side Effects</td>
<td>10015926</td>
</tr>
<tr>
<td>Judgement</td>
<td>Risk for</td>
<td>10017252</td>
</tr>
<tr>
<td>Client</td>
<td>Individual</td>
<td>10010018</td>
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</table>

Nursing Diagnosis Statement – Terms from the Focus Axis and the Judgment Axis are required
Risk for Medication Side-effects

- **Medication Side-effects**
- **focus**
- **timing**
- **site**
- **judgement**
  - degree
  - potentiality
  - acuity
  - timing
- **subject of information**
- **risk**
- **client**
# ICNP Nursing Diagnosis

**Child Delivery Risk** (10023241)

<table>
<thead>
<tr>
<th>Select Axes</th>
<th>ICNP ® Terms</th>
<th>Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus</td>
<td>Complication</td>
<td>10004865</td>
</tr>
<tr>
<td>Judgement</td>
<td>Risk for</td>
<td>10017252</td>
</tr>
<tr>
<td>Time</td>
<td>Child Delivery</td>
<td>10004311</td>
</tr>
</tbody>
</table>

Nursing Diagnosis Statement – Terms from the Focus Axis and the Judgment Axis are required
Risk for Medication Side-effects is perspective on focus timing site has site judgement degree potentiality acuity timing has subject of information subject of information has subject of information is applied to is applied to is perspective on dimension is applied to Risk

Complication

Child Delivery

Child Delivery Risk (10023241)
ISO DIS 18104
Reference Terminology Model for Nursing Actions
ICNP Nursing Intervention: Teaching the Family about Disease (10021719)

<table>
<thead>
<tr>
<th>Select Axes</th>
<th>ICNP® Terms</th>
<th>Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action</td>
<td>Teaching</td>
<td>10019502</td>
</tr>
<tr>
<td>Focus</td>
<td>Disease</td>
<td>10014121</td>
</tr>
<tr>
<td>Client</td>
<td>Family</td>
<td>10007554</td>
</tr>
</tbody>
</table>

Nursing Intervention Statement – A term from the Action Axis is required. Must include at least one Target term. A Target term can be a term from any axis except Judgement Axis.
Teaching the Family about Disease

- Teaching
- Disease

- action
  - timing
  - has site
  - has route
  - has means
  - acts on

- route
- means

- Family
- recipient of care

- site
- target
- recipient of care
Monitor blood glucose via glucometer

- Action:
  -タイミング
  -手段

- Target:
  -受診者

- Site:
  -部位

- Route:
  -経路

- Means:
  -記録メーター

- Client:
  -受診者

- 血糖検査
ICNP®
Version 1.0, 7-Axis Model, and Catalogues

ICNP® 7-Axis Model

Catalogues
ICNP Catalogues

- Subsets of Nursing Diagnoses, Interventions, and Outcomes for a select or specialty area of practice.
  - Specialty area, Nursing Focus/Nursing Diagnosis, Medical Diagnosis/Health Condition

- Fill a practical need in building electronic patient record systems using ICNP® with all of the benefits of being part of a unified language system.
ICNP Catalogue Priorities

- Promoting adherence to treatment
- HIV/AIDS Home Care
- Palliative Care
- Cancer care (ambulatory)
- Family nursing
- Women’s health
- Urinary incontinence
- Mental health (adolescent girls)
### ICNP Catalogue Example

**Promoting Adherence to Treatment**

<table>
<thead>
<tr>
<th>NURSING DIAGNOSES</th>
<th>NURSING INTERVENTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk for medication side effects</td>
<td>Teach family about medication side effects</td>
</tr>
<tr>
<td>Non adherence to diet</td>
<td>Monitor adherence to medication regime at home and work using pillbox</td>
</tr>
<tr>
<td>Medication knowledge deficit</td>
<td>Reinforcing exercise</td>
</tr>
<tr>
<td>Cultural belief about disease</td>
<td>Assess health beliefs</td>
</tr>
<tr>
<td>Ability to manage regimen</td>
<td>Identify attitude toward care</td>
</tr>
<tr>
<td>Lack of trust in health care provider</td>
<td>Demonstrate subcutaneous injection technique</td>
</tr>
<tr>
<td>Denial</td>
<td>Consult physician</td>
</tr>
<tr>
<td>Impaired mobility</td>
<td></td>
</tr>
</tbody>
</table>
ICNP Catalogue for Ambulatory Cancer Care
Unique Identifiers (CODES)

- All of the concepts, in the ICNP have unique codes (identifiers).
  - Acute - 10001739
  - Pain – 10013950
  - Acute Pain – 10000454
  - Teaching - 1009502
  - Teaching about Managing Pain - 10019489

- Facilitates electronic use, mapping, storage, and retrieval for reuse.
Timeline - ICNP

1989  ➢ ICN Resolution for an ICNP
1990  ➢ ICNP Development Team
1993  ➢ ICNP Working Paper
1996  ➢ ICNP Alpha Version
1999  ➢ ICNP Beta Version
2000  ➢ ICNP Programme
          ➢ ICNP Evaluation Committee & Review Process
2001  ➢ ICNP Beta 2 Version
2002  ➢ ICNP Strategic Advisory Group
2003  ➢ First ICNP Centres
2005  ➢ ICNP Version 1.0
2007  ➢ Harmonization & Applications (Translations, Catalogues)
Translations

- Arabic – Health and Biomedical Information unit, WHO/EMRO.
- Portuguese - Ordem dos Enfermeiros
- Japanese - JNA
- Korean – Seoul National University

In process
- French, German, Italian, Norwegian, Polish, Spanish, Thai, Turkish
- Translation Tool
Multinational Translation Meeting

Organización Colegial de Enfermería
(Spanish Nurses Association)

Sponsored meeting of nurses from Spanish-speaking countries in Madrid in April 2007 to validate Spanish translation of ICNP Version 1.0
ICNP®
Review Process:
How to Participate
(2001)
ICN-Accredited Centres for ICNP Research & Development

- German-Speaking ICNP Centre (Germany, Switzerland, & Austria)
- Chilean Centre (Concepcion, Chile)
- Research Centre for Nursing Practice of ACT Health (Canberra, Australia)
- University of Wisconsin-Milwaukee College of Nursing (USA)
- University of Minnesota School of Nursing (USA)
German speaking users
Examples of ICNP Research Projects

- **Cross cultural validation studies**
  - Australia, Botswana, Brazil, Canada, Chile, India, Japan, Mexico, New Zealand, Portugal, South Africa, Swaziland, USA, Zimbabwe

- **Electronic health information system**
  - Brazil, Germany, Denmark, Italy, Korea, Pakistan, Portugal, Slovenia, Thailand, USA

- **Cross-mapping and ICNP® Catalogue development**
  - Canada, Germany, Japan, Korea, Netherlands, Portugal, Sweden, UK, USA
ICNP dissemination

- ICN Publications
  - ICNP Bulletin (June & December)
  - ICNP Catalogues

- Conference presentations, workshops, tutorials, posters

- Publication list on website includes more than 100 references
  - http://icn.ch/bib-icnp-references.htm
ICNP Partnerships

- ICN National Nurse Associations
- ICNP Centres
- Nursing specialty organizations
- Health ministries/governments
- Health information software vendors
- ICNP® reviewers, committee members & researchers
- Terminology developers & experts
- Standards development organizations
- WHO
Your work with ICNP

- Learn about ICNP, teach others
- Become an ICNP nurse reviewer
- Conduct research using ICNP®
- Participate in ICNP catalogue development
- Use ICNP in clinical practice
- Get involved with an ICNP R&D Centre
- Make presentations, write publications
Contact Information

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- ICN – icn@icn.ch

- ICNP® website - http://www.icn.ch/icnp.htm
THANK YOU