
THE UNIVERSITY OF IOWA
COLLEGE OF NURSING
Inspiring Excellence, Exceeding Expectations

Integrating the Nursing Interventions Classification (NIC) into Education and Practice

Best Practices in Nursing – Standardized Nursing Language

National Library of Estonia
North Estonia Medical Centre Conference
Tallinn, Estonia
November 8–9, 2017,

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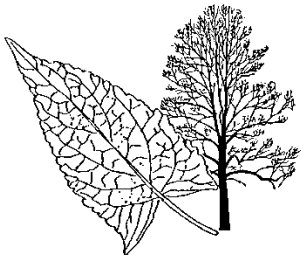
The University of Iowa College of Nursing



The University of Iowa
College of Nursing

How do we think?

One way we think is in categories

Classification systems organize knowledge so that knowledge can be managed and retrieved for knowledge building, identifying useful knowledge relationships, managing complexity, and facilitating decision-making.

Classifications

Classifications organize knowledge

We organize so we can manage

Classifications allow us to:

- **Retrieve information**
- **Build knowledge**
- **Identify novel relationships**
- **Make sense**
- **Manage complexity**
- **Facilitate decision making**
- **Control the flow of information**

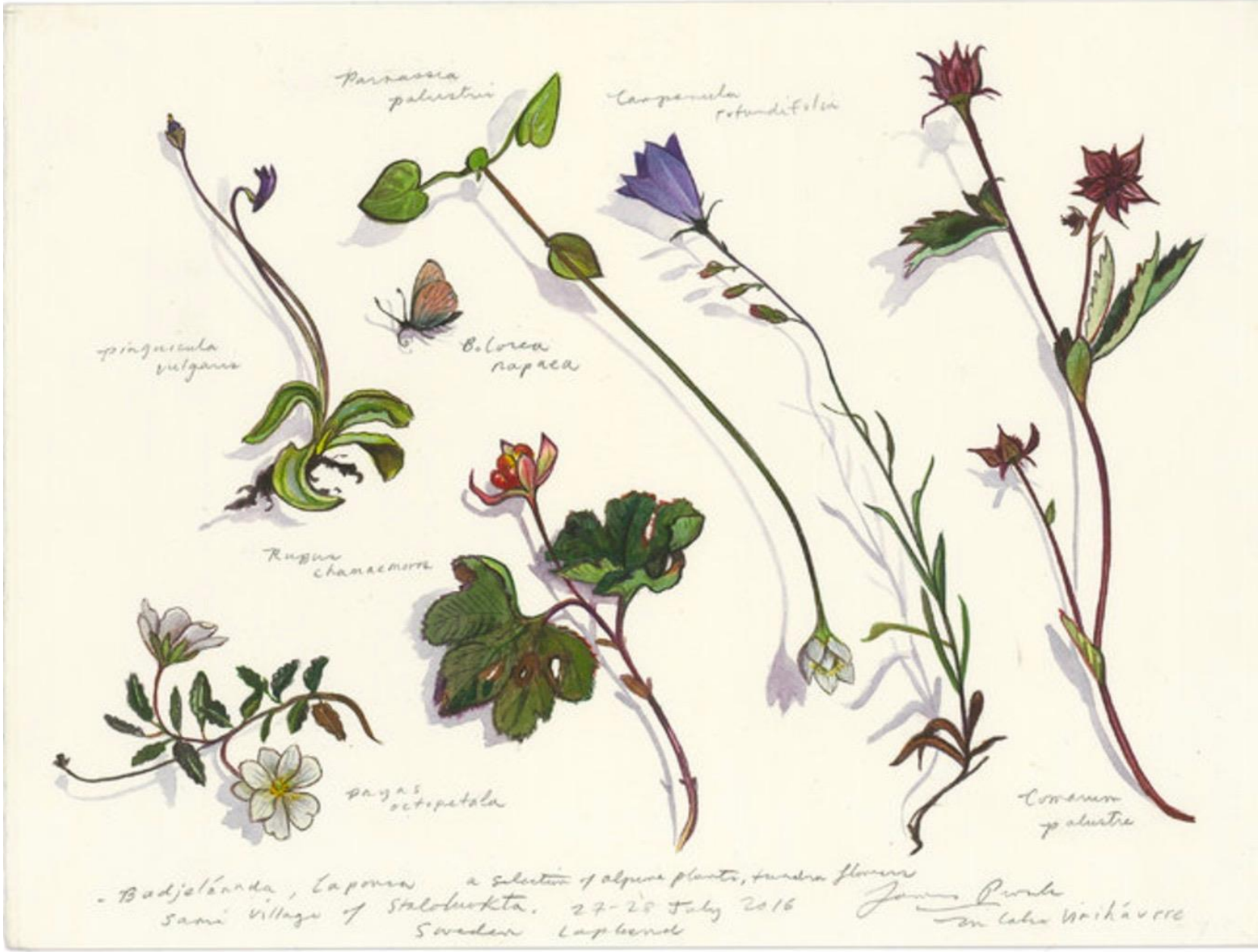
Linnaeus, the originator of classification, believed you can take nature ---
holistic, fluid, and constantly changing---
and fragment, label, and systematize it.

Humans need categories, names, in order to think and communicate. Linnaeus helped us see and communicate with nature that "conforms to the manner in which the human mind thinks."

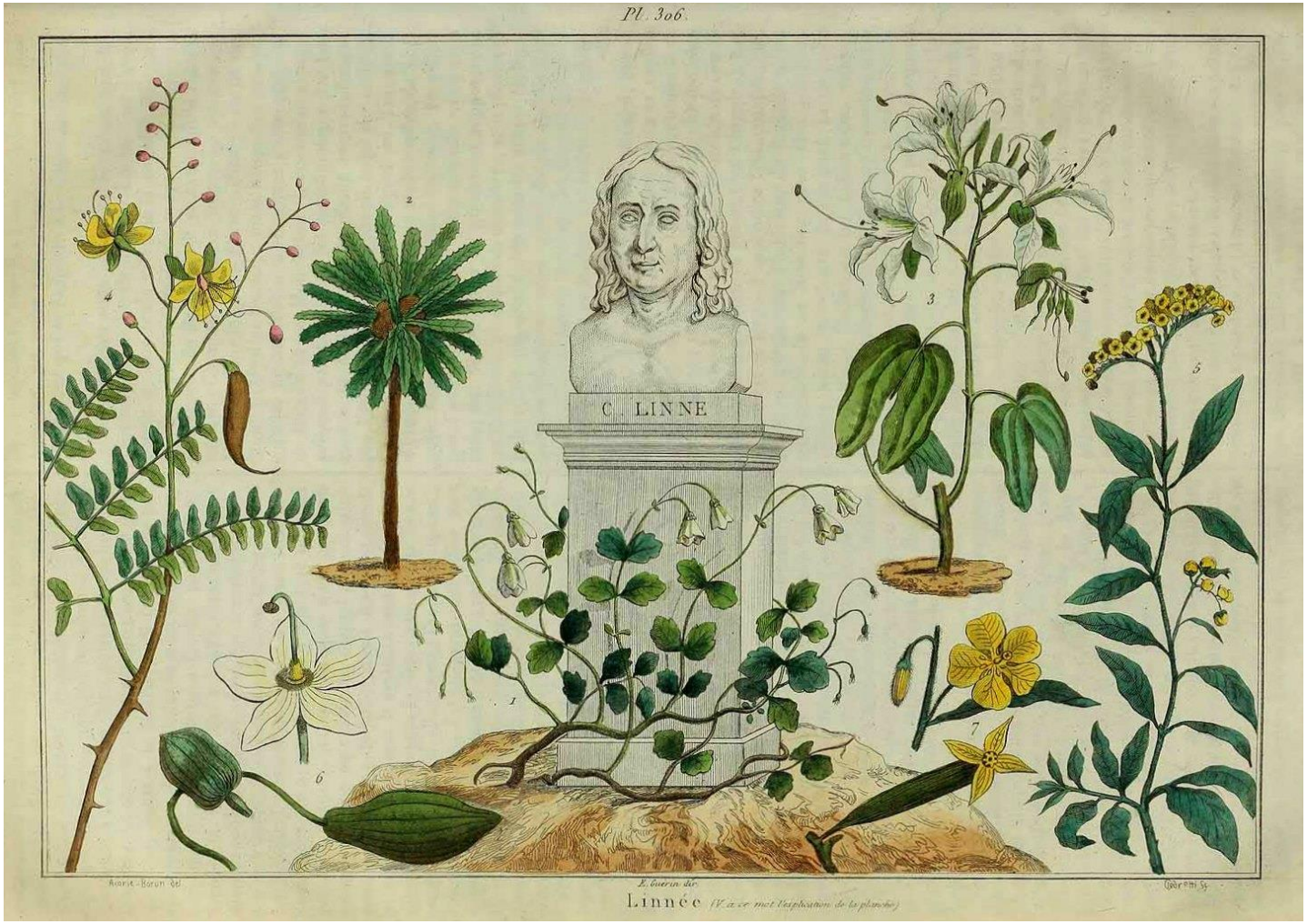
E.O Wilson

Linnaeus's Garden

Linnaeus's Garden



Linnaeus's Garden



Linnaeus's Garden

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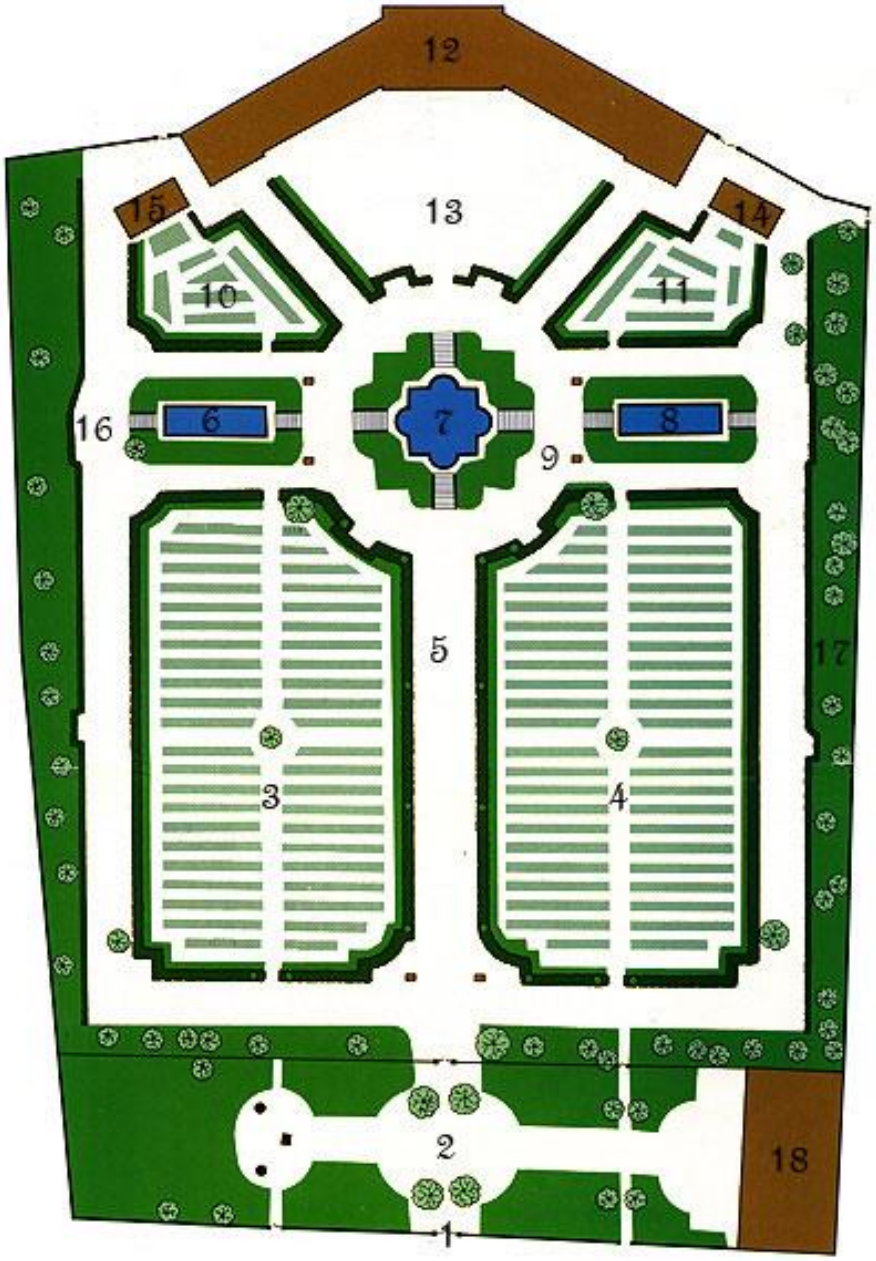
Linnaeus's Garden



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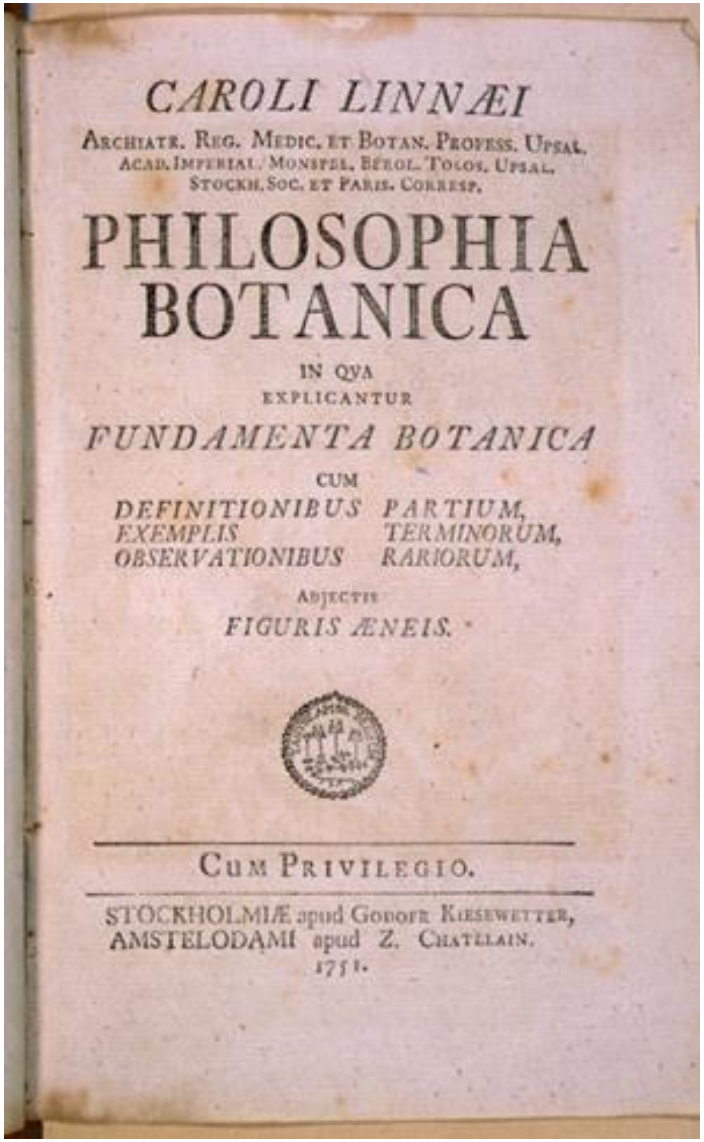


CAROLI LINNÆI

ARCHIATR. REG. MEDIC. ET BOTAN. PROFESS. UPSAL.
ACAD. IMPERIAL. MONSPEL. BEROL. TOLOS. UPSAL.
STOCKH. SOC. ET PARIS. CORRESP.

PHILOSOPHIA BOTANICA

IN QVA
EXPLICANTUR

FUNDAMENTA BOTANICA

CUM

DEFINITIONIBUS PARTIUM,
EXEMPLIS TERMINORUM,
OBSERVATIONIBUS RARIORUM,

ADJECTIS

FIGURIS ÆNEIS.

CUM PRIVILEGIO.

STOCKHOLMIÆ apud GODOFR. KIESEWETTER,
AMSTELODAMI apud Z. CHATELAIN.
1751.

The Contribution of NIC to the Development of Nursing Science

Language and Identity

What Creates Nursing Identity

Nursing Philosophy

Metaparadigm

Ways of Knowing

Paradigms

Nursing Conceptual Frameworks

Nursing Theories

Midrange Theories

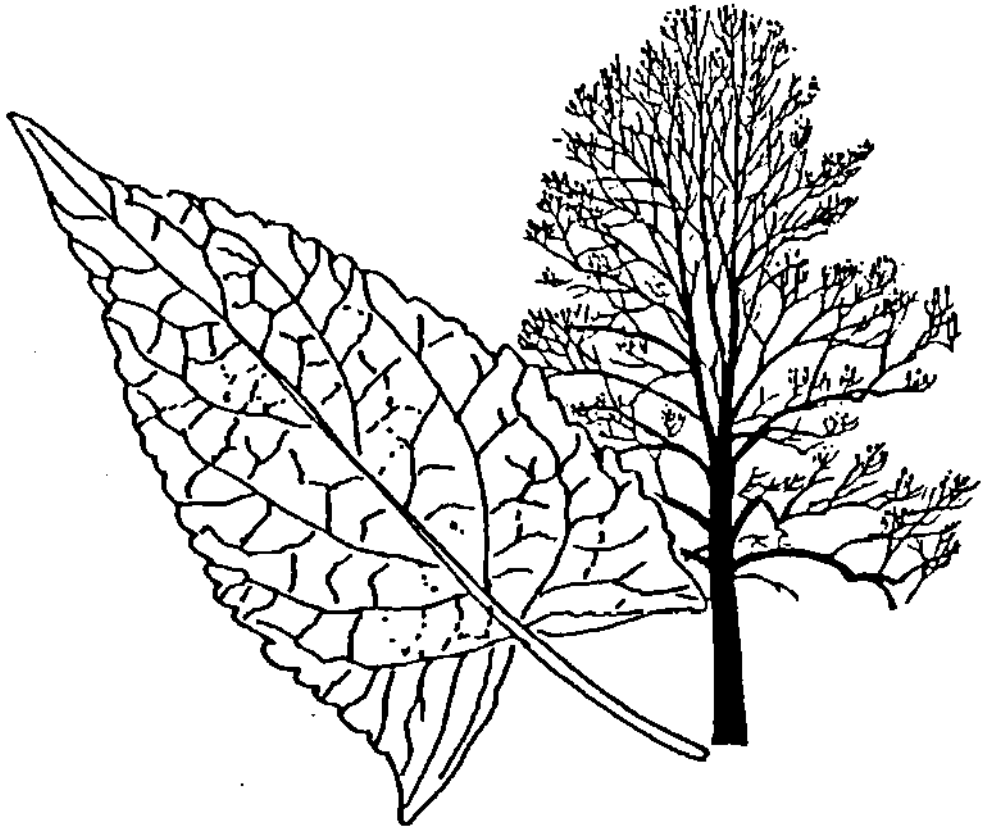
Practice Methods

Nursing Languages (NANDA-NIC-NOC)

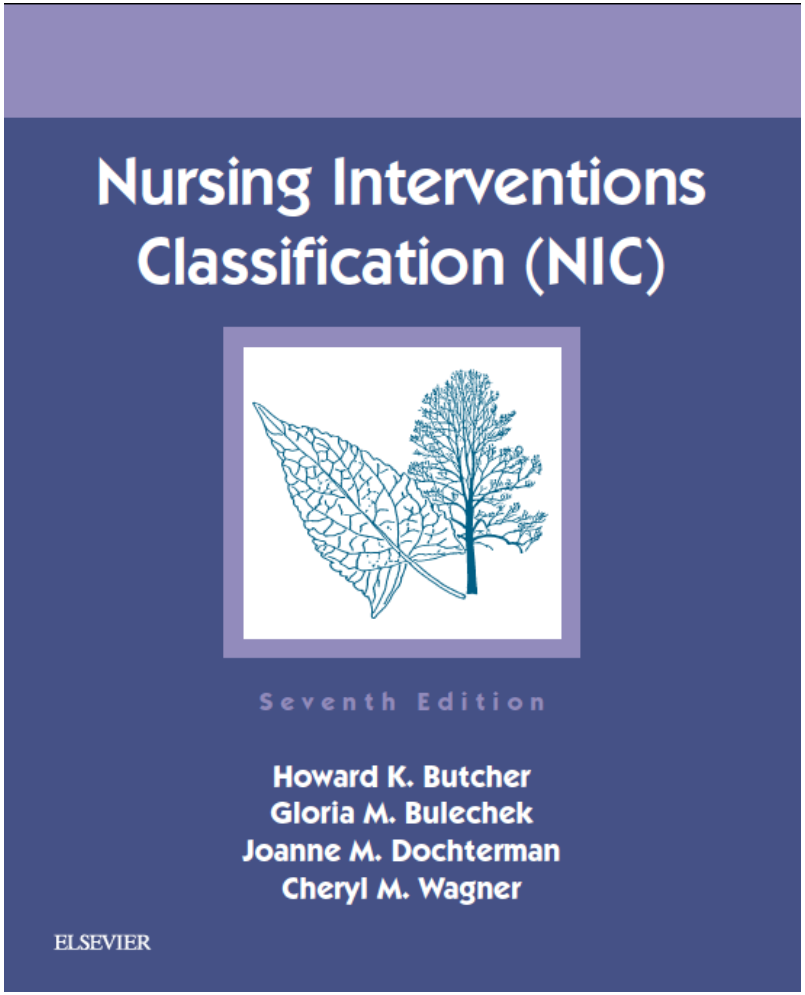
How are Standardized Languages Used by Nurses?

- Describes the phenomenon of interest
- To share observations & knowledge with other members of the profession
- To make the work of the profession visible
- To bring order to the domain of practice
- To evaluate quality of care & conduct research
- To build evidence for expert practice

NURSING INTERVENTIONS CLASSIFICATION



NIC 7th edition 2018

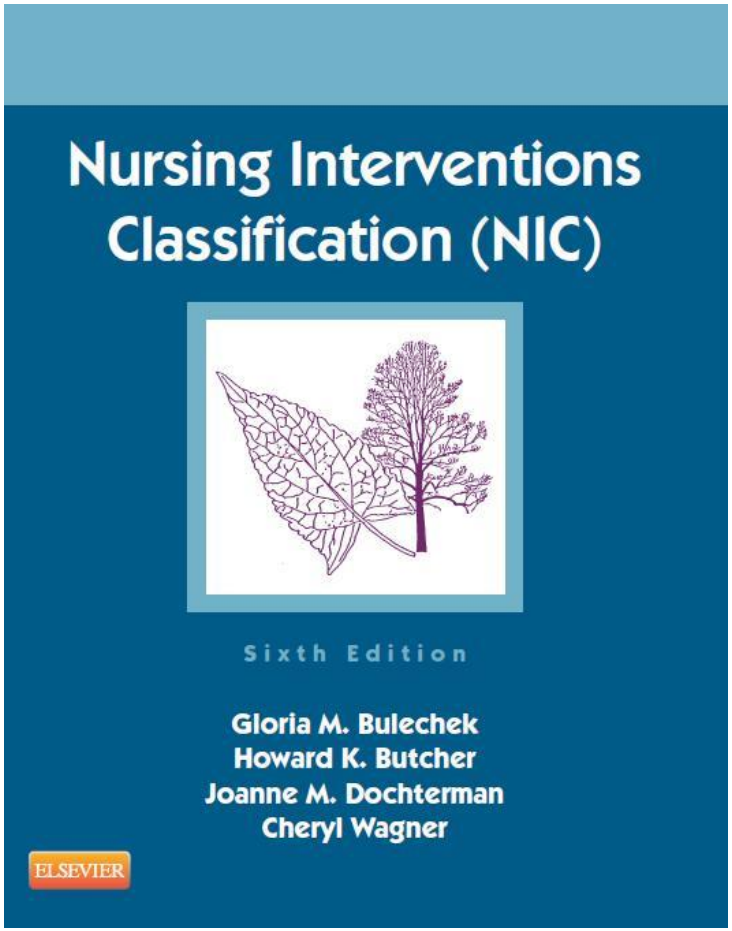


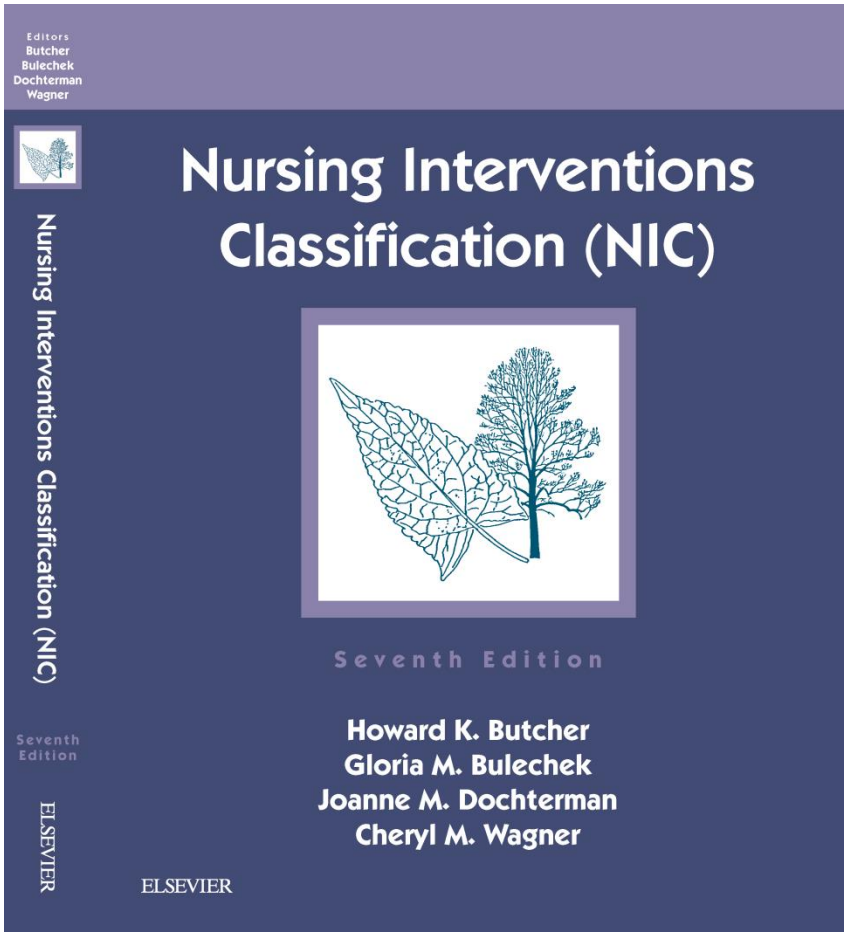
Definitions

- **Classification-systematic arrangement in groups or categories according to established criteria**
- **Taxonomy- (arrangement) the rules or conventions of an order or arrangement (structure) of concepts of knowledge; a systematic structure or knowledge map that exist in all domains of human activity as a means to manage knowledge (things, ideas, times, places) that give a sense of the whole. Must have a controlled or standardized vocabulary to create clarity and meaning.**

Edition	Year	NIC Interventions	Classes	Domains
First	1992	336	27	-
Second	1996	433	27	-
Third	2000	486	27	7
Fourth	2004	514	30	7
Fifth	2008	542	30	7
Sixth	2013	550	30	7
Seventh	2018	565	30	7

NIC 6th Edition 2013 & NIC 7th Edition 2018





Structure of the NIC Taxonomy

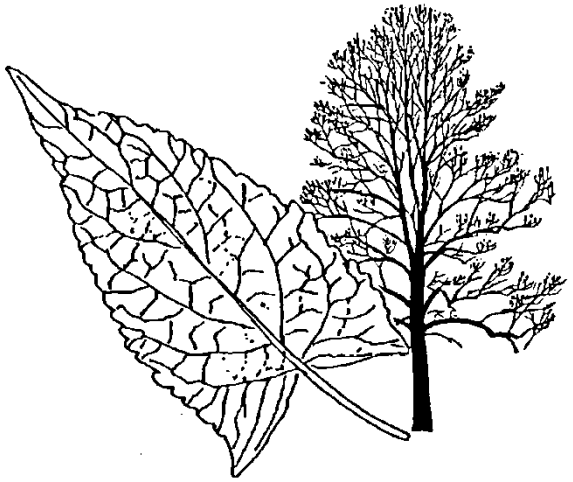
Domains (7)

Classes (30)

Interventions (565)

Definitions

Activities



Defining Nursing Interventions

The Nursing Interventions Classification (NIC)
"is a comprehensive, research-based, standardized classification of interventions that nurses perform. It is useful for clinical documentation, communication of care across settings, integration of data across systems and settings, effectiveness research, productivity measurement, competency evaluation, reimbursement, and curricular design."

An *intervention* is defined as:
"any treatment, based upon clinical judgment and knowledge that a nurse performs to enhance patient/client outcomes."

Significance of Classifying Nursing Interventions

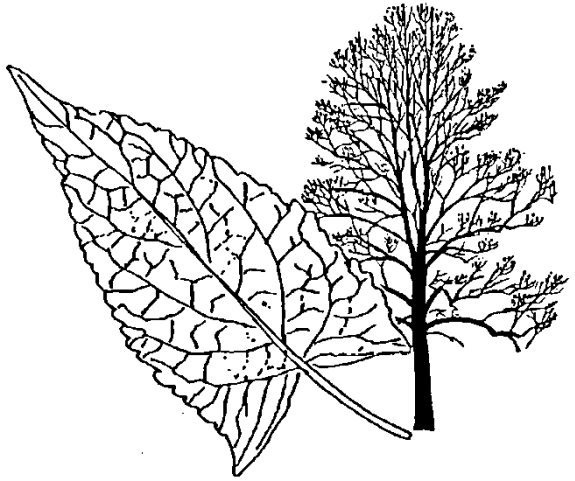
1. Helps demonstrate the impact nursing has on healthcare delivery
2. Standardizes and defines the knowledge base for nursing curricula and clinical practice
3. Facilitates communication of nursing treatments to nurses and other health care providers
4. Enables researchers to examine the effectiveness and cost of treatments
5. Assists educators to develop nursing curricula that better articulate with clinical practice

Significance of Classifying Nursing Interventions

6. Facilitates the teaching of clinical decision making
7. Assists administrators in planning more effectively for staff and equipment services
8. Promotes the development of a reimbursement system for nursing services
9. Facilitates the development and use of nursing information systems
10. Communicates the nature of nursing to the public

Taxonomy of Nursing Interventions: Domains & Classes

- **Physiological: Basic**
  - Activity & Exercise Management
  - Elimination Management
  - Immobility Management
  - Nutrition Support
  - Physical Comfort Promotion
  - Self-Care Facilitation
- **Physiological: Complex**
  - Electrolyte & Acid-Base Management
  - Drug Management
  - Neurologic Management
  - Perioperative Care
  - Respiratory Management
  - Skin/Wound Management
  - Thermoregulation
  - Tissue Perfusion Management
- **Behavioral**
  - Behavior Therapy
  - Cognitive Therapy
  - Communication Enhancement
  - Coping Assistance
  - Patient Education
  - Psychological Comfort Promotion
- **Safety**
  - Crisis Management
  - Risk Management
- **Family**
  - Childbearing Care
  - Childrearing Care
  - Lifespan Care
- **Health System**
  - Health System Mediation
  - Health System Management
  - Information Management
- **Community**
  - Community Health Promotion
  - Community Risk Management



NUSING ACTIVITIES

The specific behavior or actions that nurses do to implement an intervention and which assist patients/clients to move toward a desired outcome. Nursing activities are at the concrete level of action.

A series of activities is necessary to implement an intervention.

Fall Prevention 6490

Definition: Instituting special precautions with patient at risk for injury from falling

Activities:

- Identify cognitive or physical deficits of the patient that may increase potential of falling in a particular environment
- Identify behaviors and factors that affect risk of falls
- Review history of falls with patient and family
- Identify characteristics of environment that may increase potential for falls (e.g., slippery floors and open stairways)
- Monitor gait, balance, and fatigue level with ambulation
- Ask patient for perception of balance, as appropriate
- Share with patient observations about gait and movement
- Suggest changes in gait to patient
- Coach patient to adapt to suggested gait modifications
- Assist unsteady individual with ambulation

- Provide assistive devices (e.g., cane and walker) to steady gait
- Encourage patient to use cane or walker, as appropriate
- Instruct patient about use of cane or walker, as appropriate
- Maintain assistive devices in good working order
- Lock wheels of wheelchair, bed, or gurney during transfer of patient
- Place articles within easy reach of the patient
- Instruct patient to call for assistance with movement, as appropriate
- Teach patient how to fall as to minimize injury
- Post signs to remind patient to call for help when getting out of bed, as appropriate
- Monitor ability to transfer from bed to chair and vice versa
- Use proper technique to transfer patient to and from wheelchair, bed, toilet, and so on
- Provide elevated toilet seat for easy transfer
- Provide chairs of proper height, with backrests and armrests for easy transfer
- Provide bed mattress with firm edges for easy transfer

- Use side rails of appropriate length and height to prevent falls from bed, as needed
- Place a mechanical bed in lowest position
- Provide a sleeping surface close to the floor, as needed
- Provide seating on bean bag chair to limit mobility, as appropriate
- Place a foam wedge in seat of chair to prevent patient from arising, as appropriate
- Use partially-filled water mattress on bed to limit mobility, as appropriate
- Provide the dependent patient with a means of summoning help (e.g., bell or call light) when caregiver is not present
- Answer call light immediately
- Assist with toileting at frequent, scheduled intervals
- Use a bed alarm to alert caretaker that individual is getting out of bed, as appropriate
- Mark doorway thresholds and edges of steps, as needed
- Remove low-lying furniture (e.g., footstools and tables) that present a tripping hazard

- Avoid clutter on floor surface
- Provide adequate lighting for increased visibility
- Provide nightlight at bedside
- Provide visible handrails and grab bars
- Place gates in open doorways leading to stairways
- Provide nonslip, nontrip floor surfaces
- Provide a nonslip surface in bathtub or shower
- Provide sturdy, nonslip step stools to facilitate easy reaches
- Provide storage areas that are within easy reach
- Provide heavy furniture that will not tip if used for support
- Orient patient to physical “setup” of room
- Avoid unnecessary rearrangement of physical environment
- Ensure that patient wears shoes that fit properly, fasten securely, and have nonskid soles
- Instruct patient to wear prescription glasses, as appropriate, when out of bed
- Educate family members about risk factors that contribute to falls and how they can decrease these risks
- Suggest home adaptations to increase safety
- Instruct family on importance of handrails for stairs, bathrooms, and walkways
- Assist family in identifying hazards in the home and modifying them

-

- Suggest safe footwear
- Instruct patient to avoid ice and other slippery outdoor surfaces
- Develop ways for patient to participate safely in leisure activities
- Institute a routine physical exercise program that includes walking
- Post signs to alert staff that patient is at high risk for falls
- Collaborate with other health care team members to minimize side effects of medications that contribute to falling (e.g., orthostatic hypotension and unsteady gait)
- Provide close supervision and/or a restraining device (e.g., infant seat with seat belt) when placing infants/young children on elevated surfaces (e.g., table and highchair)
- Remove objects that provide young child with climbing access to elevated surfaces
- Maintain crib side rails in elevated position when caregiver is not present, as appropriate
- Provide a “bubble top” on hospital cribs of pediatric patients who may climb over elevated side rails, as appropriate
- Fasten the latches securely on access panel of incubator when leaving bedside of infant in incubator, as appropriate

1st edition 1992; revised 2000, 2004

G. Electrolyte and Acid-Base Management
Interventions to regulate electrolyte/acid base balance and prevent complications

- **1910 Acid-Base Management**
  1911 Acid-Base Management: Metabolic Acidosis
  1912 Acid-Base Management: Metabolic Alkalosis
  1913 Acid-Base Management: Respiratory Acidosis K*
  1914 Acid-Base Management: Respiratory Alkalosis K
  1920 Acid-Base Monitoring
  2000 Electrolyte Management
  2001 Electrolyte Management: Hypercalcemia
  2002 Electrolyte Management: Hyperkalemia
  2003 Electrolyte Management: Hypermagnesemia
  2004 Electrolyte Management: Hypernatremia
  2005 Electrolyte Management: Hyperphosphatemia
  2006 Electrolyte Management: Hypocalcemia
  2007 Electrolyte Management: Hypokalemia
  2008 Electrolyte Management: Hypomagnesemia
  2009 Electrolyte Management: Hyponatremia
  2010 Electrolyte Management: Hypophosphatemia
  2020 Electrolyte Monitoring
  2080 Fluid/Electrolyte Management N
  2100 Hemodialysis Therapy
  2110 Hemofiltration Therapy
  2120 Hyperglycemia Management
  2130 Hypoglycemia Management
  2150 Peritoneal Dialysis Therapy
  4232 Phlebotomy: Arterial Blood Sample N
  1200 Total Parenteral Nutrition (TPN) Administration D

O. Behavior Therapy
Interventions to reinforce or promote desirable behaviors or alter undesirable behaviors

- **4320 Animal-Assisted Therapy Q***
  4330 Art Therapy Q
  4340 Assertiveness Training
  4350 Behavior Management
  4352 Behavior Management: Overactivity/Inattention
  4354 Behavior Management: Self-Harm
  4356 Behavior Management: Sexual
  4360 Behavior Modification
  4362 Behavior Modification: Social Skills
  4364 Commendation
  4370 Impulse Control Training
  4380 Limit Setting
  4390 Milieu Therapy
  4400 Music Therapy Q
  4410 Mutual Goal Setting
  4420 Patient Contracting
  6926 Phototherapy: Mood/Sleep Regulation
  4470 Self-Modification Assistance
  4480 Self-Responsibility Facilitation
  4490 Smoking Cessation Assistance
  4500 Substance Use Prevention
  4510 Substance Use Treatment
  4512 Substance Use Treatment: Alcohol Withdrawal
  4514 Substance Use Treatment: Drug Withdrawal
  4516 Substance Use Treatment: Overdose
  4430 Therapeutic Play Q

Benefits of Comparable Data

- Save lives and suffering
- Identify unnecessary deaths
- Improve the treatment and management of the sick
- Determine the effectiveness of particular operations and treatments
- Determine the influence of the hospital upon outcomes

WHY CHOOSE NIC

Features of NIC

Core interventions for 53 nursing specialties

NIC interventions linked to NANDA-I diagnoses

Features of NIC

Estimated time and educational level necessary to perform each intervention

- **15 Minutes or Less**
- **16-30 Minutes**
- **31-45 Minutes**
- **46-60 Minutes**
- **More than 1 hour**

- **Nursing Assistant**
- **RN Basic**
- **RN Post Basic**

Features of NIC

Multiple appendices

- **Guidelines for submission**
- **Timeline and highlights**
- **Publication list**

IMPACT of NNN

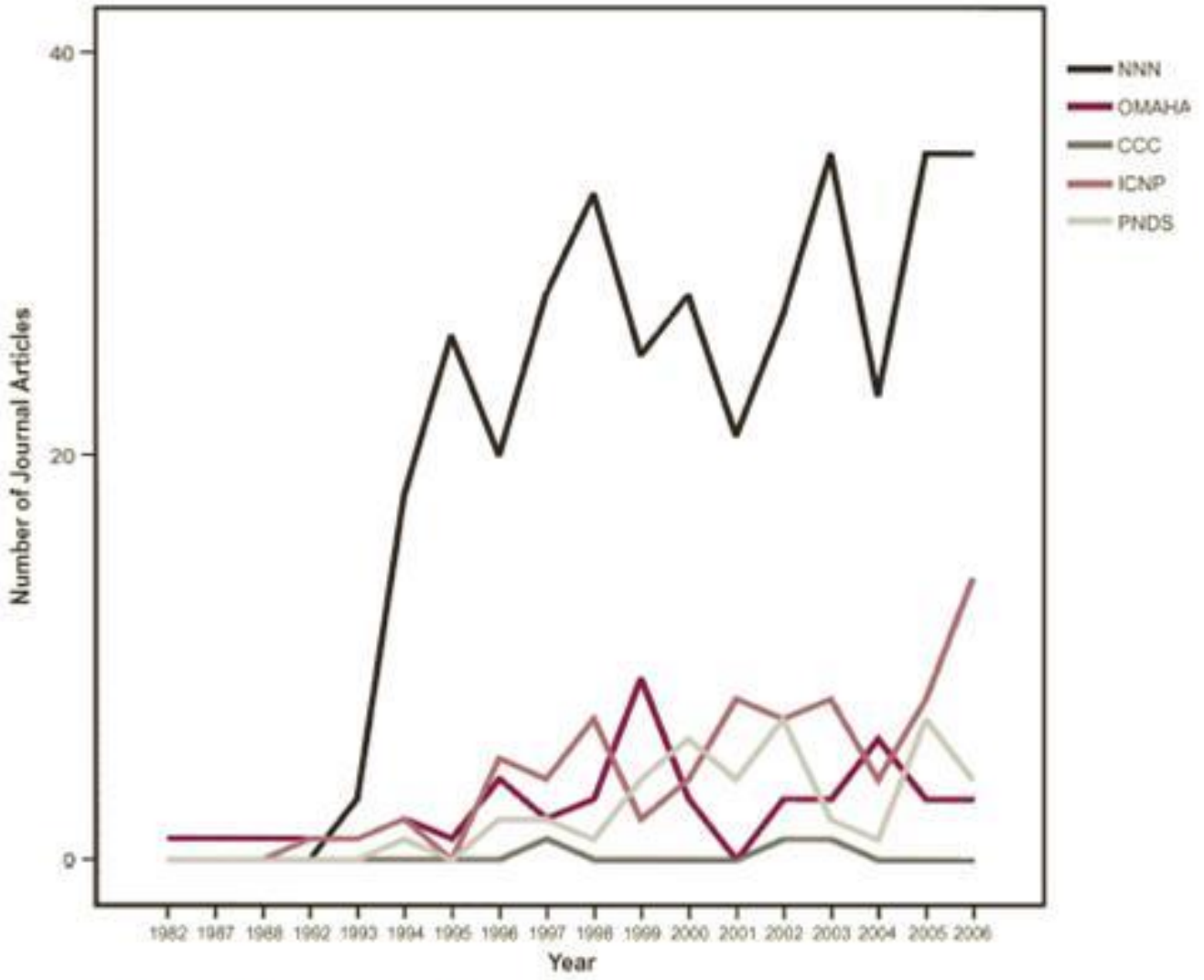


FIGURE 1. Growth in number of journal articles about nursing terminology sets from 1982 to 2006.

From: Anderson, Keenan, &Jones (2009). Using bibliometrics to support your selection of a terminology set. *CIN, 27*, p. 87.

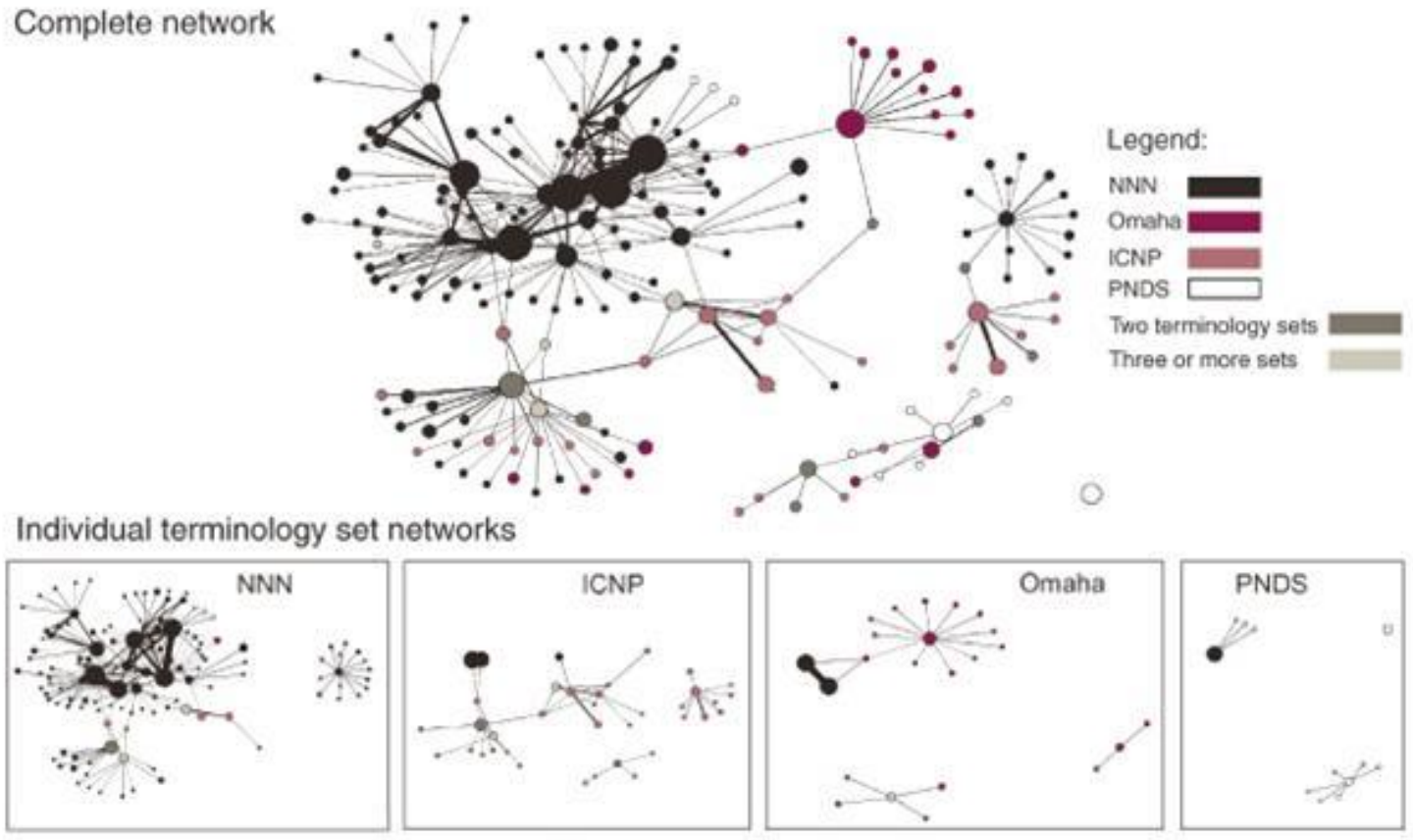


FIGURE 2. Complete coauthor network and breakout of individual terminology set networks. Author node size represents number of articles; color represents the author's primary terms. Line thickness represents the number of articles that two authors have written together.

From: Anderson, Keenan, & Jones (2009). Using bibliometrics to support your selection of a terminology set. *CIN, 27*, p. 88.

NIC Translations

- **Chinese**
- **Dutch French**
- **Icelandic**
- **Italian**
- **German**
- **Japanese**
- **Korean**
- **Norwegian**
- **Spanish**
- **Portuguese**

International Integration of NIC into the Electronic Systems

Belgium

Brazil

Canada

Denmark

England

France

Germany

Iceland

Japan

Spain

Switzerland

The Netherlands

NIC is Recognitions

- **American Nurses' Association (ANA)**
- **ANA's Nursing Information and Data Set Evaluation Center (NIDSEC) - data set that will meet the uniform guidelines for information system vendors**
- **National Library of Medicine's Metathesaurus for a Unified Medical Language.**
- **Cumulative Index to Nursing and Allied Health Literature (CINAHL) Database available via EBSCO*host***
- **NIC was included in the Joint Commission on Accreditation for Health Care Organization's (JCAHO) accreditation requirements as one nursing classification system that can be used to meet the standard on uniform data.**
- **NIC is registered in Health Level 7 (HL 7), the U.S. standards organization for health care.**

Integrating NIC into the EHR: Vendors

CPSI/Healthland
Louisville, KY
www.healthland.com

athenaheath
Watertown, MA
www.athenahealth.com

DIPS ASA
www.dips.com
Medspere Systems Corparation
www.medsphere.com

Carlbad, CA
Nurse's Aide, LLC
Keller, TX
www.nursesaide.net

Integrating NIC into the EHR: Vendors

Robin Technologies, Inc.

Worthington, OH

www.careplans.com

SNOMED-CT -ownership has transferred to IHTSDO

www.ihtsdo.org

Translated electronic versions of NIC for licensure are also available from Elsevier Japan, Elsevier Spain, Elsevier Netherlands, and Hogefe Verlagsgruppe in Bern, Switzerland.

Other vender platforms (EPIC, Cerner) have incorporated NIC at the request of the local facility. Vendors will respond to customer requests to incorporate NIC into their products.

Impact of NIC
Clinical Settings

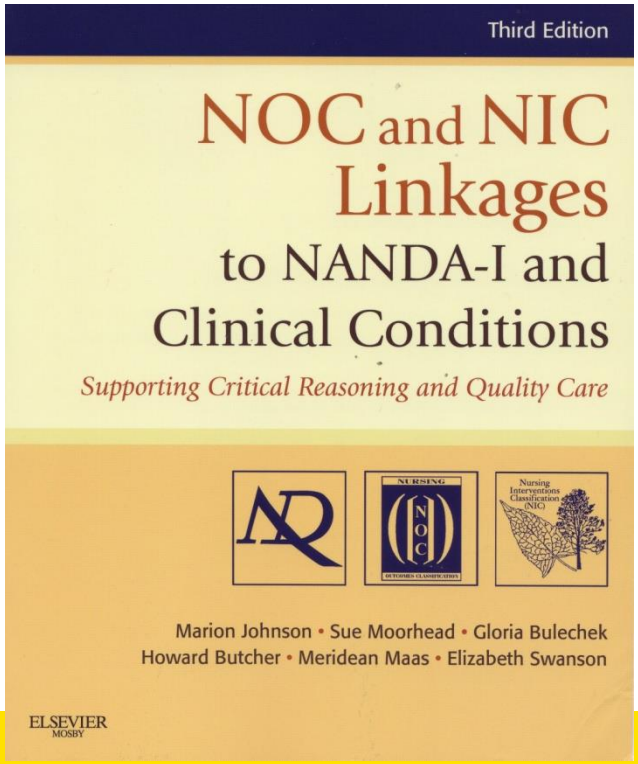
- **Clinical Reasoning**
- **Resource Allocation**
- **Determining Patient Acuity Levels**
- **Documenting Care**
- **Use in Electronic Patients Records**
- **Costing**

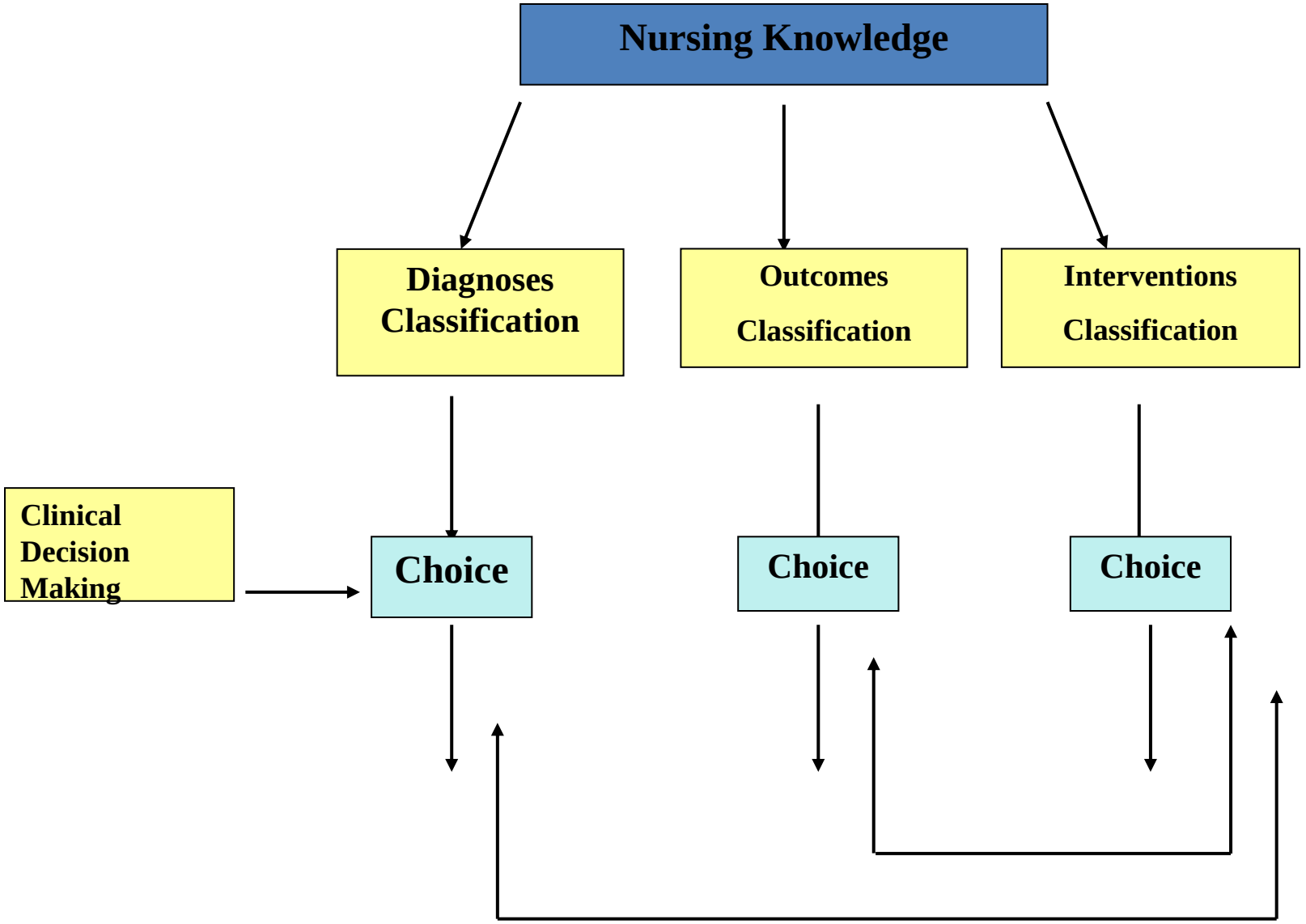
Impact of NIC in Practice: ADPIE Model of Clinical Reasoning

- **A**ssessing
- **D**iagnosing (NANDA-I)
- **P**lanning (NOC)
- **I**mplementing (NIC)
- **E**valuating the Outcomes (NOC)

NOC and NIC Linkages to NANDA-I & Clinical Conditions

- **Demonstrate relationships among NANDA-I, NOC, and NIC**
  - **Practice**
  - **Education**
  - **Research**





Iowa Intervention Project. (1996). Nursing Interventions Classification (NIC). 2nd ed., St. Louis: Mosby, p. 6.

Anxiety

Definition: Vague uneasy feeling of discomfort or dread accompanied by an autonomic response (the source often nonspecific or unknown to the individual); a feeling of apprehension caused by anticipation of danger. It is an altering signal that warns of impending danger and enables the individual to take measures to deal with threat.

NOC – NIC Linkages for Anxiety

Outcome	Major Interventions	Suggested Interventions	
Anxiety Level Definition: Severity of manifested apprehension, tension, or uneasiness arising from an unidentifiable source	**Anxiety Reduction** **Calming Technique**	**Active Listening** **Anger Control Assistance** **Aromatherapy** **Autogenic Training** **Coping Enhancement** **Crisis Intervention** **Decision-Making Support** **Distraction** **Dementia Management**	**Dementia Management: Bathing** **Medication Administration** **Music Therapy** **Relaxation Therapy** **Relocation Stress Reduction** **Sleep Enhancement** **Security Enhancement** **Vital Signs Monitoring**

Integrating NIC into Specialty Areas

- Addictions Nursing
- Ambulatory Nursing
- Anesthesia Nursing
- Burn Care Nursing
- Camp Nursing
- Child and Adolescent Psychiatric Nursing
- College Health Nursing
- Community Public Health Nursing
- Correctional Facility Nursing
- Critical Care Nursing
- Dermatology Nursing
- Developmental Disability Nursing
- Diabetes Nursing
- Domestic Violence Nursing
- Emergency Nursing
- Faith Community Nursing
- Flight Nursing
- Forensic Nursing
- Gastroenterological Nursing
- Genetics Nursing
- Gerontological Nursing
- HIV/AIDS Care Nursing
- Holistic Nursing
- Home Health Nursing
- Hospice and Palliative Care Nursing
- Infection Control and Epidemiological Nursing
- Infusion Nursing
- Medical-Surgical Nursing
- Midwifery Nursing
- Neonatal Nursing
- Nephrology Nursing
- Neuroscience Nursing
- Obstetric Nursing
- Occupational Health Nursing
- Oncology Nursing
- Ophthalmic Nursing
- Orthopedic Nursing
- Otorhinolaryngology and Head/Neck Nursing
- Pain Management Nursing
- Pediatric Nursing
- Pediatric Oncology Nursing

Integrating NIC into Specialty Areas

Perioperative Nursing
Plastic Surgery Nursing
Psychiatric/Mental Health Nursing
Radiological Nursing
Rehabilitation Nursing
School Nursing
Spinal Cord Injury Nursing
Transplant Nursing
Urologic Nursing
Vascular Nursing
Women's Health Nursing
Wound and Ostomy Nursing

NIC: Impact on Practice

- **Communicating Nursing Care**
- **Care Planning**
- **Documenting Care**
- **Determining Acuity Levels**
- **Determining Staffing Levels**
- **Costing Out Nursing Care**

Integrating NIC into Education

- **Structure Courses**
- **Integrating into Course Content**
- **Teaching Clinical Reasoning**
- **Teaching Care Planning (Electronic Systems)**
- **Using NIC to Document Care**
- **NIC is Integrated in Multiple Textbooks**

Use of NIC in Nursing Education

- Designing the Curriculum
- Choice of textbooks
- Teaching Clinical Reasoning
- Integrate into Assignments

Processes to Integrate NIC into the Curriculum

- Faculty members acceptance of standardized languages
- Students need to be immersed into the NNN format
- NNN does fit well with multiple theoretical nursing frameworks – e.g. Roy, Orem, King, Rogers)

Processes of Integration

- If students are already familiar with NANDA-I, show the linkages of diagnoses to NIC
- NIC, NANDA-I, NOC are taught in initial courses
- Create assignments right from the start that that have students become familiar with the content of the taxonomy

Processes of Integration

- **Build courses around the NNN taxonomy (Use Core Specialty NIC/NOC to help determine course content)**
- **For teaching assessment, use an assessment framework:**
  - **Based on a nursing theory**
  - **Linked to NANDA-I**
  - **Use the NIC/NOC Domains/Classes**

Processes of Integration

- Use NNN terminology to teach in the skills lab
- If you are using simulations, use NNN
- Select textbooks and choose texts that have NNN integrated in them
- When teaching clinical, use the NNN textbooks

Processes of Integration

- When using case studies in didactic courses, always use NNN for planning care
- When teaching clinical/diagnostic reasoning, use NNN (ADPIE)
- In clinical, use a care planning form based on NNN

Use of NIC in Research

- **Descriptive Research**
  - **Validating NICs in Specific Populations**
  - **Identifying most common core interventions**
  - **Research to test NIC and Workload**

Use of NIC in Research

- **Intervention Testing**
  - **Evaluate acceptability, feasibility**
  - **Efficacy (degree an intervention causes intended outcomes under ideal conditions**
  - **Testing Tailored Interventions**
    - **Personality Factors**
    - **Goals**
    - **Needs**
    - **Preferences**
    - **Dose**

Use of NIC in Research

- **Effectiveness Research**
  - **Use actual clinical data contained in databases to measure the effectiveness of the intervention**
  - **Variables like interventions, outcomes, specific patient characteristics, specific provider characteristics treatment setting characteristics**
  - **What interventions occur together**
  - **Which nurses use which interventions (specialty areas)**
  - **What are the related diagnoses and outcomes for particular interventions**

Use of NIC in Research

- **Comparative Effectiveness Research**
  - **Which intervention is better than another in a population**

Use of NIC in Research

- **Intervention Testing Research**
- **Effectiveness Research**
- **Development and Testing of Evidence-based Practice Protocols**
- **Efficacy Research**
  - **Definition of intervention**
  - **Dose of intervention**

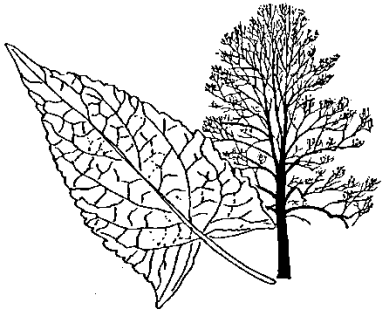
Designing Effectiveness Research

- **Uses actual clinical data contained in agency databases**
- **Focuses on the effect of provider interventions on patient outcomes.**

Developing Evidence-Based Protocols

References of examples of how to include NIC/NOC in evidence based practice (GNIRC) protocols.

Future Directions



- Developing New Interventions
- Updating Interventions
- Integrating NIC into EHR
- Integrating NIC with EBP Guidelines
- Using NIC to Address Quality Indicators
- Using NIC to determine nursing acuity levels
- Using NIC to determine staffing ratios/levels

Future Research

- Using NIC Interventions as a base for nursing intervention research
- Validating NIC Activities
- Effectiveness Intervention Research
- Intervention Testing Research
- Big Data Analytics (Cognifying-Sensors monitoring BioPsycho Markers)
- Using NIC in Big Data Analytics for decision making support, population health management, health surveillance

NIC as a Garden

- The beauty of nursing practice
- Naming what we do
- Domains as garden plots
- Seeding and weeding
- Revising as tending and pruning
- Cultivating
- Research as enriching the soil
- Becoming the garden

Contact Information

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