Maria Müller-Staub (PhD, MNS, EdN, RN)
Director, Pflege PBS
Senior Researcher ZHAW University, Winterthur Switzerland
Chair ED&RC, NANDA-I

NANDA-I Latin American Symposium 2011

Research needed to strengthen NANDA-I, NIC & NOC

Presentation

- Why use classifications & research ?
- Classifications & nursing process
- Research needs
- Exemples of implementation studies
- Integrating NNN into Electronic Health Records
- Research needed: Topics & Methods
- Conclusions

Classifications: WHY??

+Main question:

What is the meaning for nursing?

For clinical nurses?

For educators, scientists?

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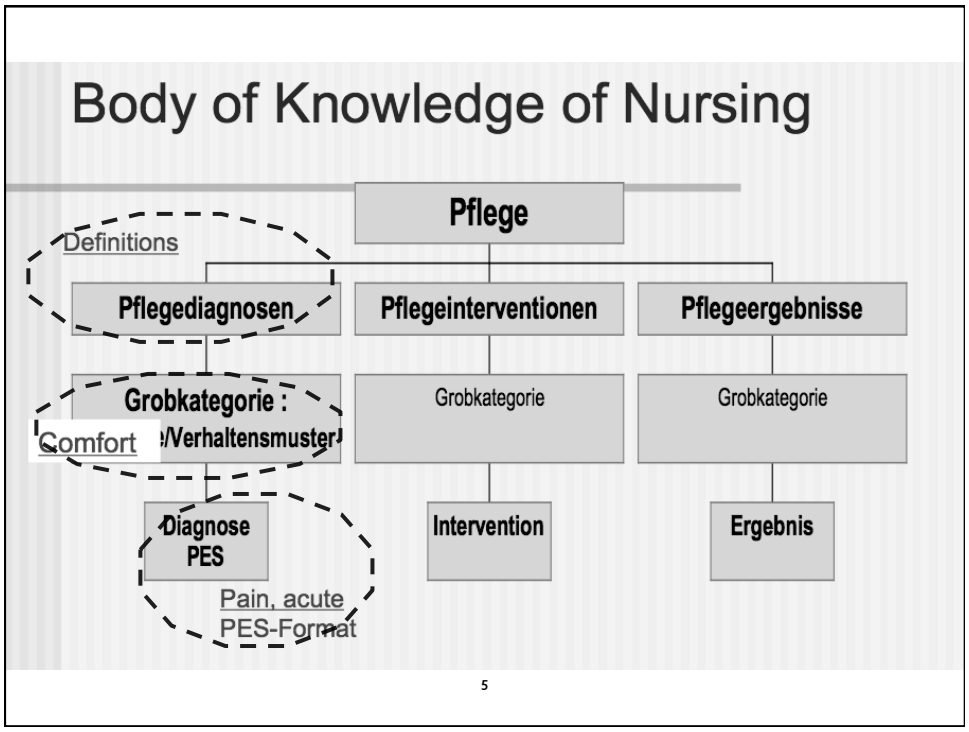
The Unique Focus of Nursing
(Profession & Science)

Experiences and responses to health problems, e.g., Risk for Infection

Experiences and responses to life processes, e.g., Readiness for Enhanced Knowledge of Child Care


Body of Knowledge of Nursing
Pflege
Definitions
Pflegediagnosen
Pflegeinterventionen
Pflegeergebnisse
Grobkategorie :
Comfort
/Verhaltensmuster
Grobkategorie
Grobkategorie
Diagnose
PES
Intervention
Ergebnis
Pain, acute
PES-Format
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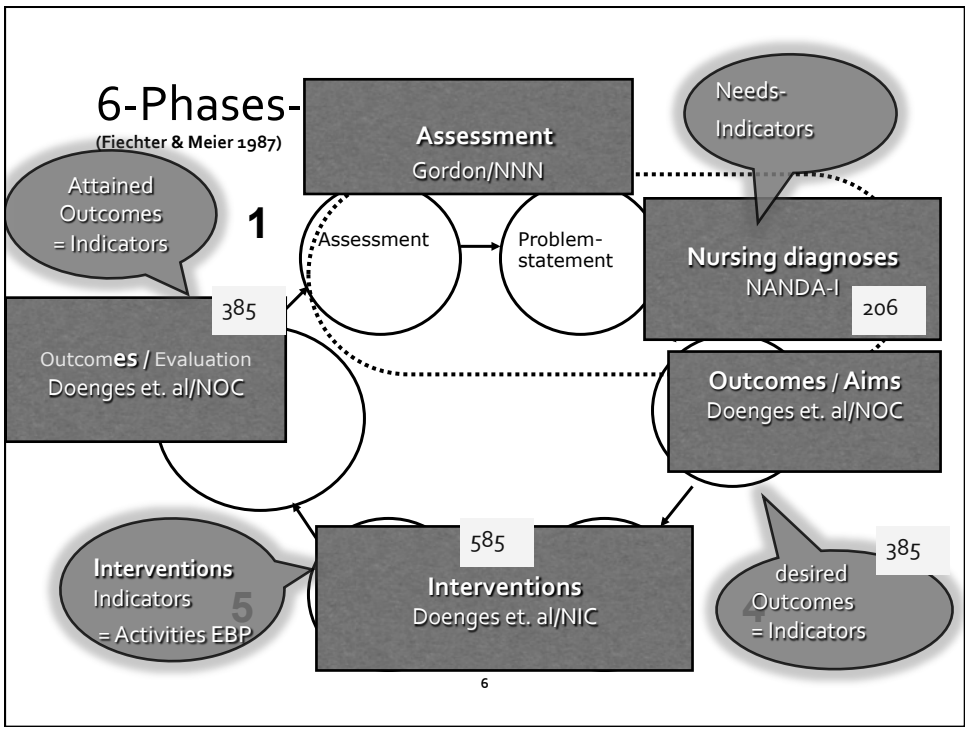
6-Phases-
(Fiechter & Meier 1987)
Assessment
Gordon/NNN
Needs-
Indicators
Attained
Outcomes
= Indicators
1
Assessment
Problem-
statement
Nursing diagnoses
NANDA-I
206
385
Outcomes / Evaluation
Doenges et. al/NOC
Outcomes / Aims
Doenges et. al/NOC
585
Interventions
Indicators
= Activities EBP
5
Interventions
Doenges et. al/NIC
385
desired
Outcomes
= Indicators
6

We need classifications

+ Nursing has a mandate to strive for

- quality
- efficiency
- measurability

+ Without classifications:
  non-precise nursing language, documentation and evaluation

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Background / State of research

+ Unspecific diagnoses, need for accuracy

Lunney, 2001, 2011; Müller-Staub, 2007/2011; Paans 2009)

+ To attain favorable nursing-sensitive patient outcomes:
  nursing diagnoses must be stated accurately, and linked with
  effective nursing interventions

(Björwell, 2002; Lavin, 2005, Müller-Staub et. al, 2009; Florin, 2005; Thoroddsen et al., 2010; Paans et al, 2010)

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Research needed - to evaluate

1. effects of application/use of nursing diagnoses
2. evaluate the implementation of nursing diagnoses, interventions and outcomes into practice
3. evaluate educational & implementation methods
4. develop and test instruments
5. refinement: validity of nursing diagnoses

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Implementing classifications: Benefits?

+Main research question:

Are patient outcomes better after implementing nursing classifications?

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Using Knowledge for Clinical Practice

Implementations and study designs

- Introductory class and eight case meetings on all wards – duration of implementation: 1 year.
  Pre-post implementation design
- Introductory class and 6 case study sessions for 12 multiplicators (1st year), coaching (2nd year): *Descriptive evaluation study /qualitative interviews*
- Guided clinical reasoning v.s. case studies on wards (3 months): *Cluster randomized, controlled experimental design*

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Evaluation study of implementing nursing diagnoses, interventions & outcomes

- Pre- posttest design to evaluate the implementation effect
- Intervention: Staff education
- Data analysis of documentations: measurement instrument Q-DIO

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Implementing nursing diagnoses:

Introductory class + eight case meetings to

- implement Nursing Diagnoses
- choose effective nursing interventions
- state and evaluate nursing outcomes
- understand relationships between nursing diagnoses, interventions and nursing outcomes

(Odenbreit, 2002a)

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Measurement instrument: Quality of Nursing Diagnoses, Interventions and Outcomes (Q-DIO)

- 4 Sub-concpets, 29 items, 3-5 point scales
- Internal consistency: Cronbach's alpha < 0.83
- Intra-Rater reliability: Pearson's τ = 0.98
- Interrater reliability: Kappa = 0.94

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Sample

- + Six wards, Swiss State Hospital
- + 72 randomly selected, documented nursing diagnoses, interventions, and outcomes

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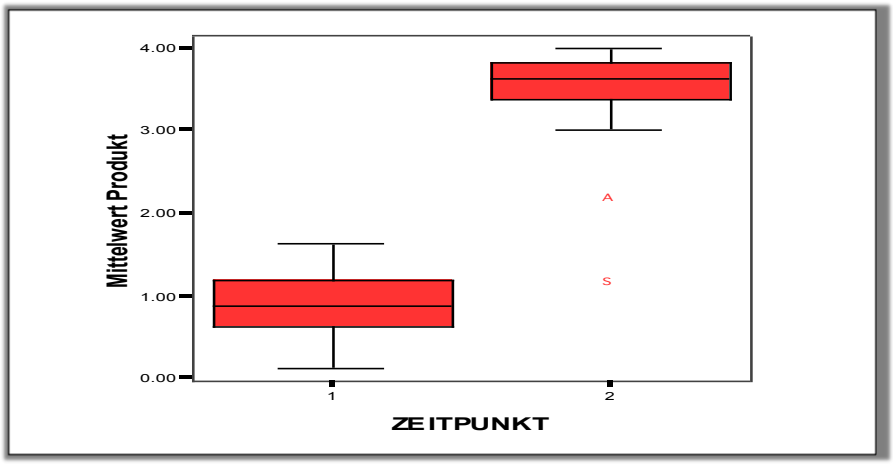
Results: Nursing diagnoses



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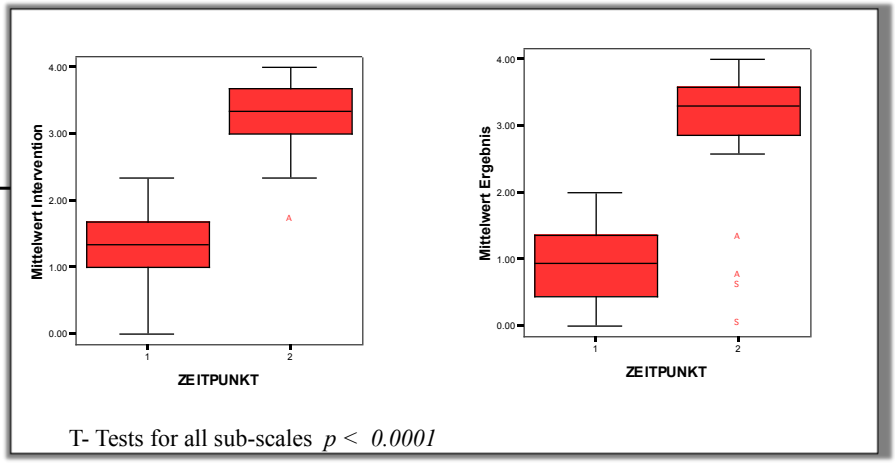
Nursing interventions and outcomes



T- Tests for all sub-scales $p < 0.0001$

Enhancing clinical reasoning – follow-up study

R-Question: After staff education in nursing diagnoses, interventions and outcomes, do nursing records contain:

- accurate nursing diagnoses?
  (+def. characteristics + related factors)
- effective nursing interventions
  = specific to the identified etiology?
- measurable, achievable nursing outcomes, describing the improvement in patients?

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Results: example

Control group

Nursing diagnosis

"Patient has a decubitus at left heel"

Intervention group

Nursing diagnosis:
Impaired skin integrity: Pressure ulcer, grade II

Etiology/related factors
- Altered circulation
- Mechanical (pressure, shear, friction)
- Impaired physical mobility
- Nutritional deficit

Signs/symptoms
- Destruction of skin layers (dermis) at left heel, 2x3 cm wide, 1mm deep)

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Results….

Control group

Nursing interventions

1) „Change bed position every 4 hours
2) „Change dressing daily".

Intervention group

Nursing interventions

1) „Observe wound daily
2) Positioning patient every 3 hours with wedge-pillow
3) Constant pressure-free positioning of heel
4) Aguagel dressing, next change at (date)
5) Mobilize patient 3 times daily for meals
6) Observe and document food and fluid intake (see protocols)
7) Instruction of patient about condition and interventions"

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Results…. Nursing Outcomes

Pre-intervention

Nursing outcomes

1)"Skin still read, small tissue damage".

Post-intervention

Nursing outcomes

1) „Tissue integrity/observable healing with epithelized, dry, irritation- and odorless skin, free of pain
2) Unimpaired mobility of joint
3) Improved self-care ability = patient performs skin observation and care, changes of position, mobility and constant pressure free positioning of heel
4) Patient can explain her condition, the etiology (pressure, immobility, nutritional status and meaning of risk management).

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Results, other: examples of diagnoses…

Pre-intervention

Nursing problem

Urinary incontinence; no PES

- -----
- -----
- ----
- Confusion, no PES
- ----
- Risk for falling: sometimes…

Post-intervention

Nursing Diagnosis

Urinary incontinence, total includ.signs/symt. + etiol. fact.

Hopelessness	includ.signs/symt. + etiol. fact.
Anxiety	includ.signs/symt. + etiol. fact.
Coping, ineffective	includ.signs/symt. + etiol. Fact.
Confusion, acute	includ.signs/symt. + etiol. fact.

Sensory Perception, impaired (visuel, kinesthetic)

Risk for falling includ.signs/symt. + etiol. fact.

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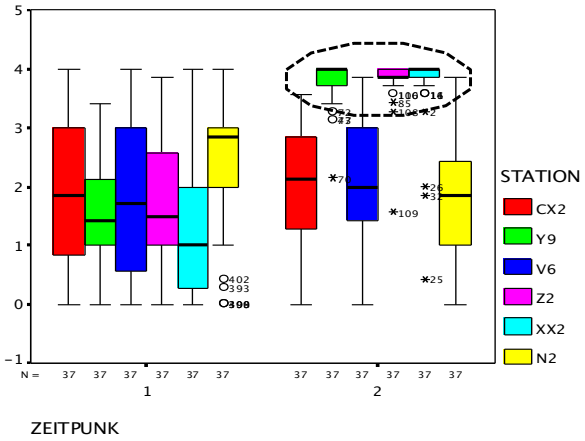
Results

	Pre- Mean (SD)	post-intervention
Nursing diagnoses		
Intervention group	2.69 (SD = .90)	3.70 (SD = .54) *
Control group	3.13 (SD = .89)	2.97 (SD = .80)
Nursing interventions		
Intervention group	2.33 (SD = .93)	3.88 (SD = .35) *
Control group	2.70 (SD = .88)	2.46 (SD = .95
Nursing outcomes		
Intervention group	1.53 (SD= 1.08)	3.77 (SD = .53) *
Control group	2.02 (SD = 1.27)	1.94 (SD = 1.06)

Intervention group: t-Tests p < 0.0001

Nursing outcomes



Tests und Mann Whitney Signifikanz Test *p < 0.0001*

(Müller-Staub, M., Needham, I., Odenbreit, M., Lavin, M. A., & van Achterberg, T., 2008)

Introductory class and 6 case study sessions for 12 multiplicators (1st year), coaching (2nd year): *Descriptive evaluation study / qualitative interviews*

- + *„Without diagnoses no meaningful care!"*
- + „Using classifications (D/I/O) enhanced my professional role and understanding"
- + „I focus more on individual care needs"
- + „My communication changed: I'm closer to patients, know more about their problems and needs such as anxiety, coping, nutrition, pain…. Nursing became more interesting!"

(Müller-Staub, Hofstetter & Reithmayer, 2010)

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Integrating NNN & research

-

- into Electronic Health Records
- and education

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Electronic Health Record (EHR) requirements

- Concept oriented (knowledge based) classifications
- Standardized, research-based language to represent the unique function of nursing
- Standardization and coding of concepts
- Include full NNN into EHRs
- Apply nursing process based on classifications: link diagnoses, interventions and outcomes
- Intelligent expert systems: Decision support

= *Individualized, evidence-based care*

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Episode of Care Hx NOC Outcomes

NOC Outcomes

Outcome	Date/Shift Initiated	Expected Rating	Initial Rating	Rating in last 3 shifts			Date/Shift	Final Rating
				10/31/2007 7a - 11a	10/31/2007 11a - 7p	11/01/2007 7a - 3p		
Cognitive Orientation	10/30/2007 7p - 7a	5	5	5	5		10/31/2007 11a - 7p (R)	5
Swallowing Status	10/30/2007 7p - 7a	4	2	3	4	4		
Tissue Perfusion: Cerebral	10/30/2007 7p - 7a	4	2	3	4	4		
Knowledge: Illness Care	11/01/2007 7a - 3p	4	2			2		
Social Support	11/01/2007 7a - 3p	4	2			2		

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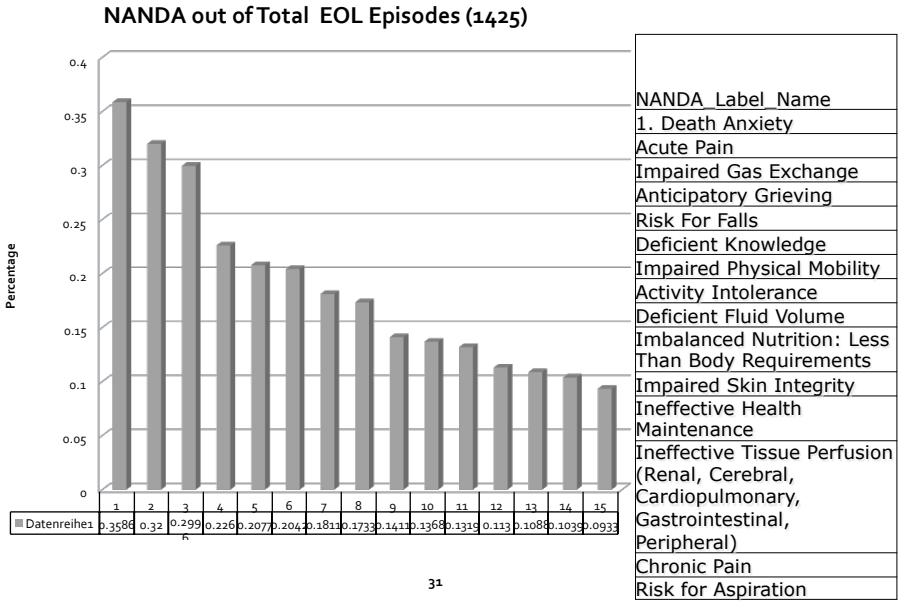

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Developing & validating nursing diagnoses

Concept Analyses

Content Validation:
new diagnoses (Brandano Chaves et al., 2010) *Impaired Memory*

Nurse expert study: descriptive correlational design
(Guirao-Goris & Duarte-Climents, 2007) Sedentary Lifestyle

+ More important: Clinical validation studies

Examples: Bartek et al.; 1999; Carlson-Catalano et al., 1998; Kim et al., 1984; Zeitoun, de Barros, Michel & de Bettencourt, 2007

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Example: *Ineffective Peripheral Tissue*

A three-phase clinical study was performed to validate 18 defining characteristics of *Ineffective Peripheral Tissue Perfusion* (Silva, Cruz, Bortolotto et al., 2006).

1. Literature review to identfy def. characteristics ; and construction and validation of a data collection instrument

2. Patients underwent a clinical nursing evaluation:
   - interview
   - physical examination
   - tests to evaluate peripheral perfusion

3. Clinical validation of defining characteristics:
   evaluation of vasomotor function by three methods
   - analysis of vasodilation in response to reactive hyperemia
   - intra-arterial infusion of acetylcholine
   - and pulse wave velocity measurements.

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Validating nursing diagnoses.....

+ **Clinical Consensus Validation:**
  research
  - practicing nurses identify the specific NANDA-I, NIC, and NOCs that apply to patients served by their unit

  (Lunney, McGuire, Endozo, & McIntosh-Waddy, 2010; Lunney, Caffrey, & Umbro, 2010; Minthorn, 2006; Minthorn & Lunney, 2010; Lunney, M., McGuire, M., Endozo, N., & Waddy-McIntosh, D. (2010).

+ **Construct and Criterion-Related Validity**
  - applying a 'Goldstandard' e.g. measurement scale to assess and compare/contrast related factors and def. characteristics
  (Concurrent validity, known-groups technique)
  e.g. Fatigue scale vs NANDA-I diagnosis

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Validating nursing diagnoses

Sensitivity, Specificity, and Predictive Value

- *Ineffective Airway Clearance*
  Measuring the sensitivity, specificity and predictive value of clinical indicators made a significant difference in the number of children identified with IAC (da Silva, Lopes, Araujo, Ciol, & Carvalho, 2009)
- Chaves Carvalho, Goyata, & Souza (2010) identified *Impaired Spirituality* in 27.5 % of the patients. The highest sensitivity, specificity and predictive values were found with the defining characteristics of: anger, feels abandoned, questions suffering, and expresses alienation.

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Validating nursing diagnoses

- **Epidemiological**
  - incidence
  - prevalence of specific diagnoses in settings and populations can show the importance and co-occurrence of diagnoses
- **Effectiveness studies**
  Diagnoses – Interventions – Outcomes
  (Shever, Titler, Dochterman, Fei & Picone, 2007)
- **Accuracy of diagnoses, effectiveness of interventions, quality of patient outcomes**
  (Müller-Staub, Needham, Odenbreit, Lavin & van Achterberg, 2007, 2008).

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Accuracy & critical thinking (educational studies)

- **+** Accuracy of diagnoses
  was assessed in patient records (n = 341) from 35 wards in 10 randomized hospitals in the Netherlands
  (Paans, Sermeus,Nieweg, & van der Schans, 2010a)
- **+** Evaluating teaching **critical thinking** to experienced nurses (Cruz, Pimenta, & Lunney, 2009)
- **+** Evaluating teaching critical thinking to nursing students (Collins, 2010)
- **+** Instruments
  Lunney Scale, Q-DIO and the D-Catch
  (Müller-Staub, Lunney et al., 2009; Müller-Staub, Lunney et al., 2010; Paans, Sermeus, Nieweg, & van der Schans, 2010a; 2010b)

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Classifications = Quality improvement

After implementing nursing diagnoses (NANDA-I):

- Assessments/diagnoses → accurate
- Nursing interventions → effective
- Patient outcomes → enhanced

Björwell et al, 2002; Curell & Urquart 2003; Daly 2002; Müller-Staub 2007; Müller-Staub et al. 2007, 2008, 2009)

Nurses: Significantly better knowledge
Nurses: Significantly higher satisfaction

- Measuring workload and staffing levels
- Grade und Skill-Mix
  (Keenan et al, 2008)

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Conclusions/Recommendations

1. Implement NNN into practice and EHRs (including linkages)

+Interactive, automated nursing assessements and reports

+ EHR as valid, research based decision making tools

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Conclusions

Nurses need support through education & coaching

More studies needed

DO RESEARCH !

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