

## **Content Validity of Nursing Language Exemplified Using ENP-NANDA Mapping**

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Good morning ladies and gentlemen. I would like to welcome you to this presentation on the validation of ENP. The study presented to you today is an excerpt from a research dissertation which was completed at the university of Witten/Herdecke, Germany.

The aims of the study are to contribute to the validation of ENP nursing diagnoses and that the subsequent knowledge gained from the validation be incorporated in the further development of ENP. Due to feasibility, the validation study is limited to the ENP nursing diagnoses with their characteristics and etiologies.

The ENP nursing classification is a standardised instrument which is used to illustrate the nursing process in a computerised patient file. Since 1989, I have been significantly involved in the development and advancement of the instruments and as leader of the ENP Research & Development Team guide the continual improvement of the standardised nursing language. The ENP nursing classification classifies nursing problems, characteristics, etiologies, resources, nursing aims and nursing interventions. The nursing diagnoses are generated by the precombination of nursing problems, characteristics and/or etiologies. Through links to other elements of the nursing classification the ENP nursing diagnoses are transferred into practise guidelines. Therefore, the nurses receive the recommended appropriate plan of action for the corresponding nursing diagnoses and are supported in their decision making.

## **ENP-NANDA Mapping**

**Relevance of the Study**  
**Cross Mapping as a Method of Validation**  
**Research Questions**  
**Research Methods and Design**  
**Development of the Rating and Judgement Categories**  
**Mapping Process**  
**Quality of the Mapping Process**  
**Results of the Cross Mapping**  
**Discussion and Study Limitations**

The following points presented here on the slide will be discussed in the presentation.

## **Nursing Classification Systems must be Valid in order to Adequately Represent Nursing**

The three most important aspects in German Healthcare are:

Adequate representation of nursing performances and their reasons for action within the DRG system in order to ensure patient care with the necessary number of personnel

Health telematics within the health system without standardised Terminology, including nursing, will not deliver the benefits hoped for e.g. in terms of optimizing process control, speeding up of the flow of information to the prevention of gaps in care.

Supporting the decision making of the nurse in practise and improving patient security and patient care.

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There are many areas which require the use of a valid instrument to illustrate nursing in the caring and therapy process. The three most important aspects in Healthcare in Germany are:

- Adequate representation of nursing performances and their reasons for action within the DRG system in order to ensure patient care with the necessary number of personnel.
- Health telematics within the health system without standardised terminology and this includes nursing will not deliver the benefits hoped for e.g. in terms of optimizing process control, speeding up of the flow of information to the prevention of gaps in care.
- To support the decision making of the nurse in practise and improve patient security and patient care.

## Method of Validation – Results of a Literature search

**Concept analysis** e.g. *Whiley (1994); Griffith Whiley (1992), Wake et al. (1994)*

**Delphi-Technique** e.g. *Grant and Kinney (1992); Lethbridge et al (1993); Smith Balancett and Flarey (1998) Whinting (1994)*

### Fehring Models

Diagnostic content validity (DCV) *43 Studies sighted*

Clinical diagnosis validity (CDV) *23 Studies found*

Differential diagnostic validation (DDV) e.g. *Simon et al. (1995)*

Etiologic correlational validation (ECR) *Fehring (1994)*

**Sensitivity Measure** e.g. *Mehmert and Delaney (1991), Rios et al. (1991), Werley and Lang (1988)*

### Multivariate Statistics for Validation

Factor analysis e.g. *Fu et al. (2001); Mallick and Whipple (2000), Assousa and Wilson (1991)*

Principal factor analysis e.g. *Whitley and Tousmann (1996); Chung (1995, 1997, 1999)*

Cluster analysis e.g. *Chung (1994)*

### Cross Mapping for Content Validation

After a comprehensive search of the literature for validation methods which have been used in the validation of other nursing classifications I decided on the method of cross mapping. This slide shows different methods of validating nursing diagnoses.

## CROSS MAPPING

### A Method for Validating Nursing Classification Systems

„Mapping, or linking like terms that represent the same concept, is a research method increasingly used for testing the reliability and validity of standardized taxonomies“

(Burkhart et al. 2005, S. 220).

This statement is verified from the results of previous cross mapping studies.

-Hyun and Park (2002)  
-Berekoven et al (2002)  
-Burkhart and Androwich (2004)  
-Hübner and Giehoff (2003)  
....

Based on the assumption that nurse experts, who have been involved in the conceptualization and description of nursing diagnoses, will reach the same or similar results it can be assumed that different classification systems such as NANDA and ENP will use similar terms and concepts to describe nursing.

Burkhart et al's statement, that the method of cross mapping is suitable for testing the validity of standardised terminologies, is confirmed through studies already completed. Burkhart et al state: "Mapping, or linking like terms that represent the same concept, is a research method increasingly used for testing the reliability and validity of standardized taxonomies".

A high mapping agreement of the two nursing classification systems would speak in favour of the validity of both. However, the cross mapping method as a method of validation of nursing classification is subject to an important fundamental restriction. Given that at this point in time that no nursing classification system can be identified as gold standard, the results regarding the validity statements are valid only in relation to the comparison of the two mapped classification systems

In this research study, it should be borne in mind that which Berger ascertained in a literature research, that approximately only 45% of NANDA nursing diagnoses have been analysed using validity studies, and the quality of these varies.

The decision to use cross mapping for the validation of ENP nursing diagnoses was mainly due to the fact that at the beginning of the dissertation in 2004 there were no validation studies on ENP®. Using the method of cross mapping it is possible for all the nursing diagnoses in ENP®'s system to meet a summary of the validity statements for context in comparison to other established classifications. As a result this research study puts us in a position to evaluate by comparison the ENP® nursing diagnoses as a whole using established assessment criteria.

## Definition: Cross Mapping

- Burkhart et al. (2005, S. 220) „Mapping is the process of linking like terms that have the same meaning.“

Terminology 1	Terminology 2
<b>One to many combination</b>	
Dysphagia	Slowed swallow reflex, chokes
	Altered pharyngeal peristaltic, difficulty in swallowing
	...
<b>Many to one combination</b>	
Walks using a stick	Walking
Walks using a Rollator	
....	
<b>One to one combination</b>	
Hyperthermia	Raised body temperature above the normal value

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The basis for the development of the cross mapping method for the ENP-NANDA mapping were the results of the literature search carried out in 2004/2005. In total 23 studies were identified where the mapping of nursing classifications were described.

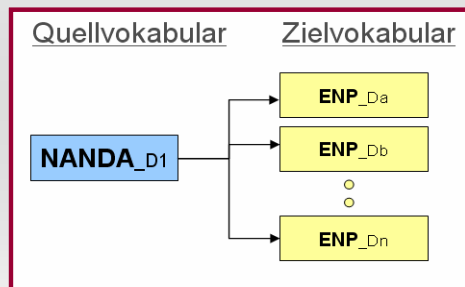
Using the mapping process similar words or word relationships or terms in each system are identified and aligned to each other (Hardiker and Rector 1998, Hoskins 1997a, p. 9, Moorhead and Delaney 1997). Burkhart et al. (2005, S. 220) define mapping as: „... the process of linking like terms that have the same meaning.“ There are different types of combinations of words, terms or other concepts between two terminologies/classification systems: a one-to-one combination is the ideal combination in mapping, but this rarely occurs. Additionally there are the „many-to-one“ and „one-to-many“ combinations between two mapped terms. Here in the table is an example. Of course there is also the combination zero-to-one and one-to-zero. (Bowman 2005, Olsen 2001).

## RESEARCH DESIGN

Non experimental, descriptive, comparative cross-sectional study

## RESEARCH METHOD

**Bi-directional Cross Mapping**  
of NANDA  
and ENP Nursing Diagnoses



**Expert rating of the Cross Mappings** in terms of completeness, significance and clarity

This is a descriptive, comparative cross-sectional study. A bi-directional cross mapping of NANDA and ENP nursing diagnoses was chosen as the research method with a subsequent expert rating of the mapping results in terms of the dimensions completeness, significance and clarity.

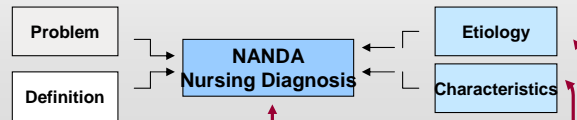
ENP nursing diagnoses were linked with NANDA nursing diagnoses using a „bidirectional cross map“ (Franklin et al. 2002) procedure. The two mapping procedures were carried out separately from one another. ENP was used as the source vocabulary and NANDA the target vocabulary and vice versa.

Using ENP→NANDA linking it can be determined for example, which ENP nursing diagnoses cannot be mapped against a NANDA nursing diagnosis, where as using NANDA→ENP linking it becomes clear which NANDA nursing diagnoses cannot be mapped against an ENP nursing diagnosis. In addition this procedure was chosen to increase the quality of the mapping procedure, as the independent separately carried out mappings were subsequently reviewed for consistency and aligned with each other.

**Method: NANDA (g. 2005-2006) and ENP Nursing Diagnoses (V. 2.4)**

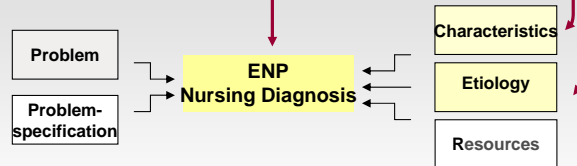
**NANDA Nursing Diagnosis:**

- Problem + Definition
- Etiology, Influencing Factors
- Defining Characteristics



**ENP Nursing Diagnosis:**

- Problem + Problemspecification
- Etiology
- Characteristics
- Resource



In a second step based on the results of the bi-directional cross mapping each NANDA nursing diagnosis was compared with the mapped ENP nursing diagnoses. In this comparison, additional to the diagnoses, the defining characteristics/characteristics of the NANDA nursing diagnoses were allocated to the characteristics of the mapped ENP-nursing diagnoses allocated. The same was also carried out for the influencing factors from the NANDA diagnosis and the etiologies from the ENP nursing diagnoses. For the mapping the NANDA 2005-2006 in the German translated version from Huber was used. Version 2.4 was used for the ENP nursing diagnoses.

The rating of the mapping carried out by an ENP expert, was carried out by recognised NANDA experts and/or experts in nursing diagnostic. The measure of agreement calculated between the experts was a quality factors for the mapping process.

## Research Questions:

- Q1 Can the content of NANDA nursing diagnoses be mapped against ENP nursing diagnoses?
- Q2 Which nursing diagnoses are not covered by ENP?
- Q3 Which of ENP's nursing diagnoses have no equivalent in NANDA?
- Q4 How do ENP nursing diagnoses represent NANDA nursing diagnoses statements?

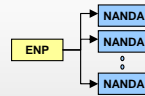
The research questions for the cross mapping between ENP nursing diagnoses and NANDA nursing diagnoses are:

*F1 Can the content of NANDA nursing diagnoses be mapped against ENP nursing diagnoses?*

*F2 Which nursing diagnoses are not covered by ENP?*

*F3 Which of ENP's nursing diagnoses have no equivalent in NANDA?*

*F4 How do ENP nursing diagnoses represent NANDA nursing diagnoses statements?*

**EVALUATION CATEGORY: ENP → NANDA Mapping****Zielstorff (1998)**

<b>Same</b>	source vocabulary is identical in wording
<b>Similar</b>	source vocabulary is comparable, or alike in substance to the term in the target vocabulary
<b>Broader</b>	source vocabulary is larger in scope, or less specific
<b>Narrower</b>	source vocabulary is smaller in scope, or more specific
<b>Not Mapped</b>	(Extension of the Evaluation Categories according to Zielstorff 1998)

I will now present the results of the ENP → NANDA mapping, the NANDA → ENP mapping and the results of the expert rating of the mapped nursing diagnoses.

The rating categories from Zielstorff were used for the ENP → NANDA mapping.

**Same**

The term from the source vocabulary is identical in wording and definition to the term of the target vocabulary. The NANDA term „Fluid Volume Deficit“, for example, means exactly the same as the HHCC-Term „Fluid Volume Deficit“.

**Similar**

The term from the source vocabulary is comparable or similar in meaning to the term from the target vocabulary. For example, the NANDA term „Altered Nutrition: Less than Body Requirement“, is similar but not identical to the HHCC term „Body Nutrition Deficit“.

**Broader**

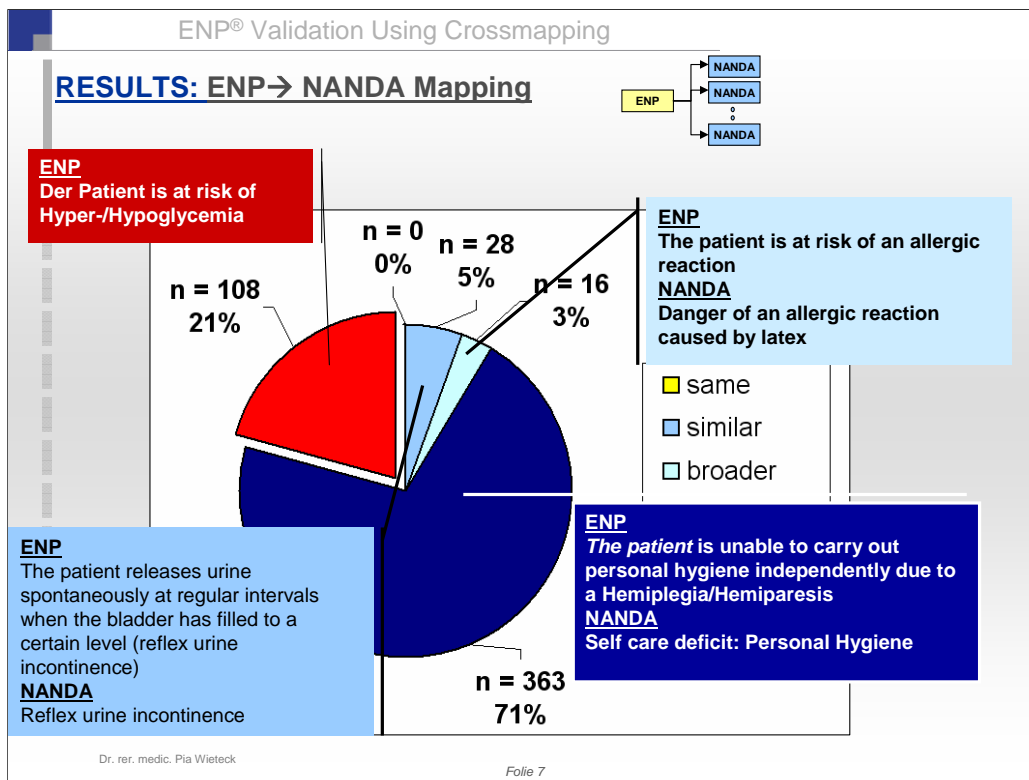
The term from the source vocabulary is broader in comprehension or less specific or can be considered to incorporate the term from the target vocabulary. The NANDA term „Pain“ is more comprehensive than the HHCC term „Acute Pain“.

**Narrower**

The term from the source vocabulary is narrower in comprehension or more specific or can be considered to be incorporated by the target vocabulary. The NANDA terms which contain „deficit“ or „impairment“ are more restrictive than the HHCC terms which describe change.

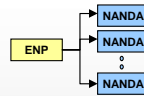
**Not Mapped (Extension of the rating categories, Zielstorff 1998)**

Furthermore, the rating categories for which ENP® could not be covered by a NANDA nursing diagnosis were reported with „not mapped“.

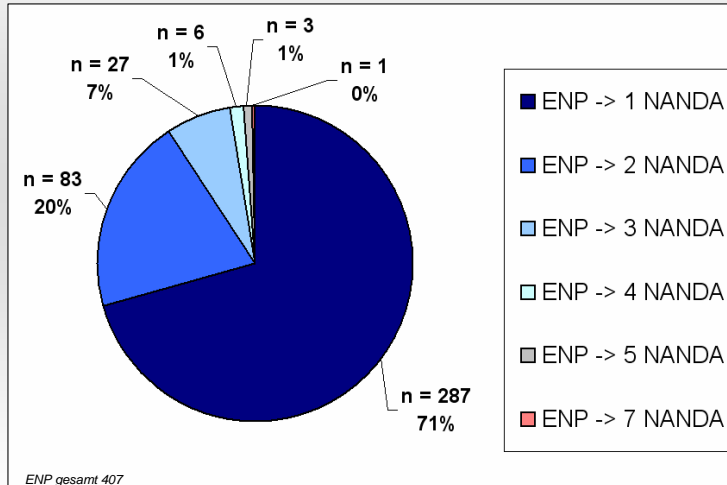


The results of the ENP → NANDA mappings are illustrated as follows. In 79% of the (n=407) ENP nursing diagnoses the comparable NANDA nursing diagnoses, which illustrated the definition of the ENP nursing diagnoses, could be found. The rating category 'same' was not assigned. This means that no ENP nursing diagnosis is formulated identically to a NANDA nursing diagnosis. 5% (n=28) of the ENP nursing diagnoses were evaluated as being identical in content statement and also in comprehensiveness. Reflex urinary incontinence can be used as an example. In both systems the nursing diagnoses have the same connotation. A total of 3% (n=16) of the ENP nursing diagnoses were evaluated as broader in comprehension as the NANDA nursing diagnoses. Here is also an example. A nursing diagnosis exists in ENP that describes the risk of allergic reaction. In NANDA a diagnosis is formulated which refers especially to a latex allergy reaction. The characteristics and etiology phrasing formulated are specifically related to the latex allergy reaction. In 71% (n=363) the comprehension of the ENP nursing diagnosis is narrower as the allocated NANDA nursing diagnosis. This is made clear using the example of the personal hygiene diagnosis for hemiplegia. In contrast to NANDA nursing diagnosis ENP focuses the diagnosis of personal hygiene. The pie chart gives a summary of the results.

**RESULTS: ENP → NANDA Mapping**



How many NANDA Diagnoses were assigned to an ENP Diagnosis?



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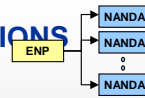
Folie 8

The next diagram shows the frequency of the matched NANDA nursing diagnoses. In 71% of the cases an ENP nursing diagnosis was matched with a NANDA nursing diagnosis. In 20% of the ENP nursing diagnoses two NANDA nursing diagnoses were matched and in approx. 8% of the cases between 3 and a maximum of 7 NANDA nursing diagnoses.

There are several reasons for the allocation of many NANDA nursing diagnoses to one ENP nursing diagnosis.

- Overlapping problems of NANDA
- Different focus of the nursing statement in both systems
- Etiology formulations contained in NANDA nursing diagnoses
- Structure of ENP, nursing problem and specification.

**REASONS FOR THE MULTIPLE ALLOCATIONS**  
in the ENP → NANDA Mapping



- ➔ Problem of overlapping of the NANDA nursing diagnoses
- ➔ Structure of ENP (nursing problem + specification)
- ➔ NANDA has formulated some etiologies/symptoms as nursing diagnoses
- ➔ Different priority settings within the two classifications
- ➔ Varying level of abstraction of the NANDA nursing diagnoses

Examples:

ENP	NANDA	NANDA	NANDA
The patient is at risk of pressure sore	<b>Risk for perioperative-positioning injury</b> (NANDA-I 2007-2008)	<b>Risk for impaired skin integrity</b> (NANDA-I 2007-2008)	<b>Risk for disuse syndrome</b> (NANDA-I 2007-2008)

Folie 9

I will now use examples which will help explain the different reasons for the multiple allocations.

The problem of overlapping in the **NANDA nursing diagnoses** leads to multiple allocations.

Therefore the ENP nursing diagnosis „the patient is unable to care for hair independently“ can be allocated to the NANDA nursing diagnosis „self care deficit to dress oneself/appearance“ and also the diagnosis „self care deficit personal hygiene“.

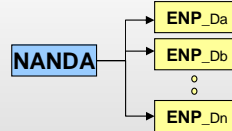
Because of **ENP’s structure** as in these two examples, the etiology and the formulation of the nursing problem two NANDA nursing diagnoses can be allocated. There is the question as to the whereabouts of the nursing problem for example in the NANDA nursing diagnosis „delayed growth and development“. An ENP developer would define this phenomenon rather as an etiology for a way of looking at a nursing problem which can be very varied.

Here is another example of an etiology formulation in **NANDA nursing diagnoses**. The nursing problem for diarrhoea could be, for example, the risk of a fluid deficit, electrolyte imbalance, raw skin round the anus or a feeling of being unwell due to continual visits to the toilet or stomach cramps.

Here is an example of the ENP nursing diagnoses **different setting of priorities** compared to NANDA nursing diagnoses. Phantom pains can be chronic as well as acute. The ENP developers decided that phantom pains should have a different treatment process as, for example, headache.

The **different level of abstraction** also resulted in multiple allocations.

## EVALUATION CATEGORY: NANDA → ENP Mapping

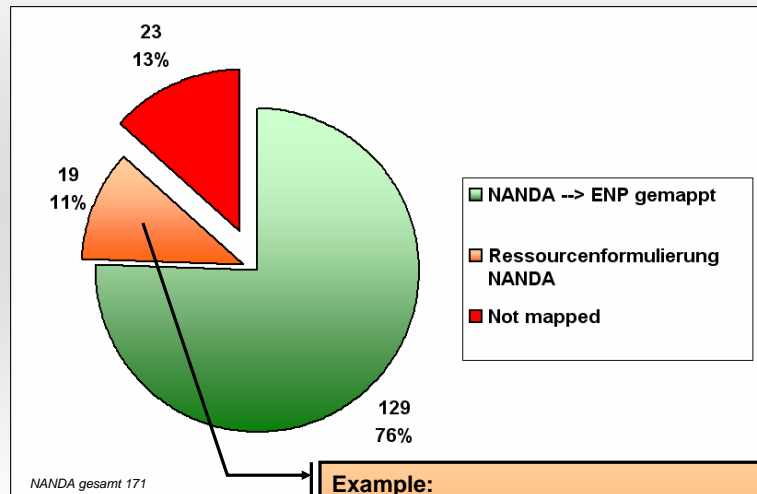
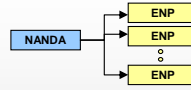


### Mapped and not mapped

Additionally it was quantified how many ENP® nursing diagnoses were assigned to a NANDA nursing diagnosis in order to map these for content.

Only the rating categories mapped and not mapped were assigned for the NANDA→ ENP mapping. In addition the ENP nursing diagnoses assigned to NANDA nursing diagnosis were counted.

**RESULTS: NANDA → ENP Mapping**

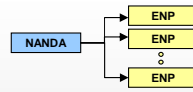


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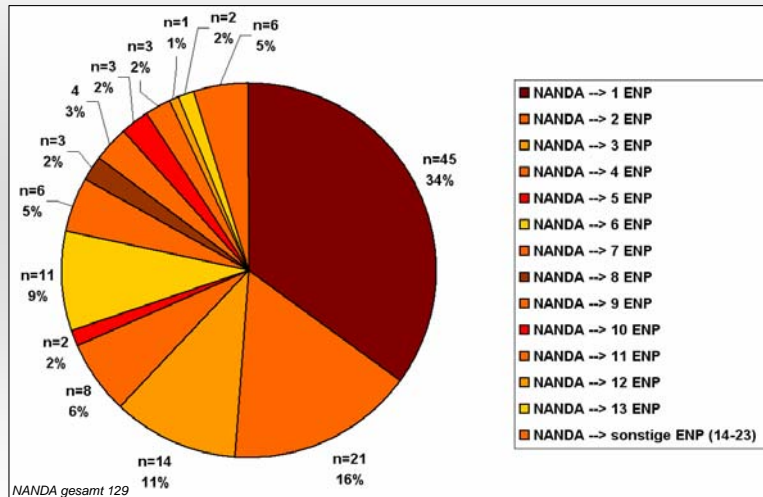
Folie 11

In total 75 % (n=129) of the NANDA nursing diagnoses could be mapped against one or more ENP nursing diagnosis. In approx. 25% (n=42) from the current 171 NANDA nursing diagnoses, no ENP nursing diagnosis could be mapped. From these 11% (n=19) of the NANDA nursing diagnoses are so-called Wellness nursing diagnoses. Their content could be covered in ENP by the wording of the resources. No equivalent could be found in ENP for 13% (n=23) of the NANDA nursing diagnoses.

**RESULTS: NANDA → ENP Mapping**



How many ENP-Diagnoses were assigned to a NANDA diagnosis?



Over half (66 %) of the NANDA nursing diagnoses which could be mapped, were mapped against several ENP nursing diagnoses. It can be demonstrated by means of the diagram, how many ENP nursing diagnoses could be allocated to one NANDA nursing diagnosis. The range is between 1–23 ENP nursing diagnoses. These results correspond to the previous results of the ENP-NANDA mappings, which demonstrate that ENP nursing diagnoses are up to 71% narrower in meaning as the NANDA nursing diagnoses.

**EXPERT RATING: Mapped ENP-NANDA nursing diagnoses**

**Evaluation Table:**

NANDA 1	ENP gesamt	ENP a	ENP b	ENP c	ENP d	ENP e
Kennzeichen	Kennzeichen					
K 1	K a	x				
	K b		x			
K 2	K c			x		
	K d				x	
K 3	K e					x
	K f	x				
Ursachen	Ursachen					
U 1	U a	x				
	U b		x			
U 2	U c			x		
	U d				x	
U 3	U e					x
	U f		x			

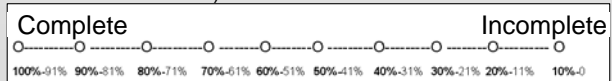
**Evaluation Categories:** Clarity, significance, completeness

The ENP-NANDA mapped diagnoses were prepared for the expert rating as shown in the following table. In the table highlighted in blue are the NANDA terms, at the top is the diagnosis, the identifying characteristics, and finally all the influencing factors or risk factors of a NANDA diagnosis. In the yellow column are the allocated ENP nursing diagnoses. In the dark yellow column the characteristics and etiologies of the ENP diagnoses are pulled together and contrasted with the corresponding wording from NANDA.

**Evaluation categories for the evaluation by the experts**

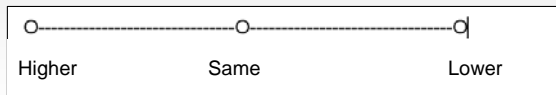
**NANDA→ENP mapping using related factors/characteristics und related factors/etiologies**

F4\_1 How **completely** can the ENP nursing diagnoses (set of nursing diagnoses with characteristics/etiologies) illustrate the statement of NANDA nursing diagnoses (Defining characteristics/Related Factors)?



F4\_2 How do you judge the completeness of the ENP nursing diagnoses set (with characteristics/etiologies) in comparison with the expressiveness of the NANDA nursing diagnoses (with Defining characteristics/Related Factors)?

F4\_3 How do you judge the clarity of the ENP nursing diagnoses set (with characteristics/etiologies) in comparison with the NANDA nursing diagnoses (with Defining characteristics/Related Factors)?



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The rating categories for evaluating the mapped nursing diagnoses were developed and defined with supporting literature. The completeness was estimated using a 10 point scale which specified percent. Expressiveness and clarity were rated in three categories. ENP's expressiveness/clarity is higher, same or lower compared to the NANDA nursing diagnoses.

### RATER AGREEMENT: Clarity

Agreement percent: 69%  
Agreement percent for the combination of the evaluation categories (higher/equal) **86%**

Median Cohens  $\bar{K}$  of the rater pair **0,51** (Median  $K_{\max}$  0,69)  
Kappa  $\bar{k}_m$  for the Multi-rater **0,48**

### RATER AGREEMENT: Expressiveness

Agreement percent : 66%  
Agreement percent for the combination of the evaluation categories (higher/equal) **87%**

Median Cohens  $\bar{K}$  of the rater pair **0,42** (Median  $K_{\max}$  0,795)  
Kappa  $\bar{k}_m$  for the Multi-rater **0,43**

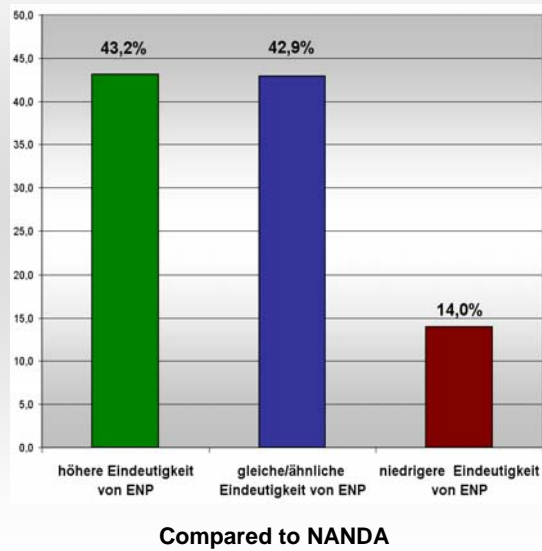
The quality of the mapping was calculated using agreement measurements; rater agreement; Spearman's  $\rho$  for completeness; and percentage agreement for expressiveness and clarity; and the multi-rater Kappa.

The agreement values for rating categories expressiveness and clarity are listed on the slide.

The Kappa values should be interpreted with the knowledge that the rater judgements and the specified Kappa-Max values were asymmetric in their distribution. Overall, against the complex background of the evaluation circumstances, the agreement values can be rated as acceptable.

**RESULTS: Expert Evaluation - Clarity**

Bar diagram: allocation of the rater judgment in percent



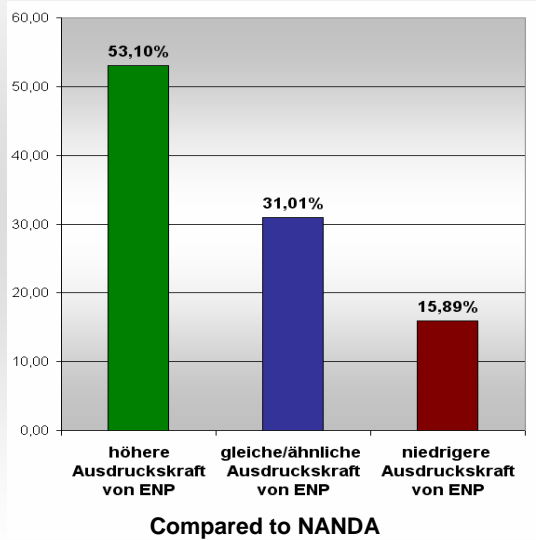
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Folie 15

In the following diagram the three rater judgements are summed up in percent. The ENP nursing diagnoses which were allocated to NANDA diagnoses were rated higher in clarity in 43%. In 43% equally well and in 14% the ENP diagnoses were rated as lower in clarity compared to NANDA nursing diagnoses.

**RESULTS: Expert Evaluation - Expressiveness**

Bar diagram: allocation of the rater judgment in percent



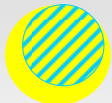


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Folie 16

Summerised and averaged in percent the results of the rater judgement for expressiveness are as follows. In 53% of the NANDA nursing diagnoses the allocated ENP nursing diagnoses in expressiveness were judged to be higher as the NANDA nursing diagnosis. In 31% equally good in expressiveness and in 16% lower in expressiveness as NANDA.

**Coherence Lower Expressiveness and clarity**

Lower rating of the ENP nursing diagnoses on expressiveness and clarity	Judgement	Chart
ENP nursing diagnoses are subsets of the NANDA nursing diagnoses	NANDA ~ ENP ● ●	
ENP is included	NANDA ~ ENP ● ●	
NANDA is included	NANDA ~ ENP ● ●	

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Three reasons could be identified, as to why the raters judged „lower“ expressiveness and clarity in comparison to the NANDA nursing diagnoses.

These are shown in the table. There was a lower rating, when ENP nursing diagnoses only represent parts of the NANDA nursing diagnoses statements. The lower the shared subset of the nursing classifications is, the lower clarity and expressiveness were rated in comparison to the NANDA nursing diagnoses.

Just as the ENP nursing diagnoses were rated lower in expressiveness and clarity, when ENP was included in the NANDA statement or, vice versa, when the NANDA nursing diagnoses statement was included in the ENP nursing diagnosis.

## Summary of Results

- Expressiveness and Clarity of the ENP nursing diagnoses were evaluated to a large extent (approx. 84%) higher/equally good compared to NANDA.
- A lesser proportion of ENP nursing diagnoses (approx. 16%) were evaluated in terms of expressiveness/Clarity as lower compared to NANDA.
- No comparison could be carried out in 108 ENP nursing diagnoses with NANDA-nursing diagnoses (21%) as NANDA did not cover the content.
- 23 NANDA nursing diagnoses (13%) could not be mapped with ENP- nursing diagnoses.
- A finer granularity of the nursing diagnoses contributes to an increased expressiveness and Clarity .
- A correlation exists between the evaluation expressiveness and Clarity (median Spearman's  $\rho$  0,80).

In summary it can be noted that the expressiveness and clarity of the ENP nursing diagnoses were rated to a greater extent higher or equally good in comparison to NANDA.

A smaller number of ENP® nursing diagnoses (approx. 16%) were rated lower in expressiveness/clarity compared to NANDA. Here we see the potential for the further development of ENP nursing diagnoses.

In 108 ENP nursing diagnoses (21%) no comparison to NANDA nursing diagnoses could be completed as NANDA did not cover these contents.

It was demonstrated in the study that the **finer granularity** of the nursing diagnoses contributes to the increase in expressiveness and clarity and there is a link between the valuations expressiveness and clarity in the rater evaluations (Median Spearman  $\rho$  0,80).

NANDA nursing diagnoses which are more granulated in wording e.g. „Latex allergic Reaction“ were evaluated from the experts as more expressive and clearer.

## Limitations of the Study

### **Due to the Cross Mapping Method:**

- The quality of the statements from the ENP nursing diagnoses relates to the ENP-Set to which a NANDA nursing diagnosis was allocated and not to the separate ENP nursing diagnoses,
- possible existing definitions in ENP were not observable through the study
- no statement can be made as to whether the abstraction level in ENP is more homogeneous than NANDA.

The following limitations of the study due to the cross mapping method are:

The quality of the statements from the ENP nursing diagnoses relates to the ENP-Set to which a NANDA nursing diagnosis was allocated and not to the separate ENP nursing diagnoses.

Possible existing overlapping difficulties in ENP were not observable through the study.

No statement can be made as to whether the abstraction level in ENP is more homogeneous than NANDA.

## Limitations of the Study

- Low number of experts
- Highly complicated evaluations procedure, carried out on the basis of each of the experts level of experience.
- Constraints due to the quality of NANDA nursing diagnoses:

A fundamental criticism is that the validity statement from the study is restricted to the comparison with NANDA.

The following aspects are described in the literature and were confirmed by the study:

There are inconsistencies in the level of abstraction and grades of detail in the NANDA nursing diagnoses. Due to the results of the study it is presumed that NANDA is not complete.

Overlapping of nursing diagnoses exists and not all NANDA nursing diagnoses have yet been validated.

Despite its limitations the study is a valuable source of information for the further development of ENP.

A further central aspect which will be looked at in further studies is the link between the granularity and the terminology and the evaluation of expressiveness and clarity.

The central question which „accuracy, clarity“ in patient documentation is necessary should be the focus of further research studies.

*Thank you for your attention*

Dr. rer. medic. Pia Wieteck

Thank you very much for your attention.

We will now be pleased to answer any questions you may have.

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