

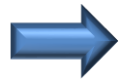
A photograph of a nurse in light blue scrubs sitting and typing on a black laptop. A red stethoscope is draped around the nurse's neck. The background is a plain, light color.

# **Requirements of nursing classification systems for a useful application in electronic data records**

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Requirements of nursing classification systems for a useful application in electronic data records



Accuracy and abstraction level of various nursing classifications



Potential impact of granularity on accuracy and explanatory power of nursing classification systems in relation to the nursing care process

## ■ Requirements for nursing classifications

*"A precise and unambiguous illustration of the patient's situation and nursing intervention is a requirement"*



- Completeness to fully illustrate the nursing care process (Zielstorff 1998; Henry et al. 1997, Bakken et al. 1998, von Krogh et al. 2012)
- Representation of the current nursing knowledge in the form of practice guidelines to support decision making (Gordon 1998)

*"Whether nursing classification systems provide sufficient granularity to adequately capture nursing practice is controversial."*

*(vgl. Moss et al. 2005)*

*„Presence of terms that represent a fairly coarse—and hence somewhat ambiguous and inconsistent—level of data abstraction that often blurs many of the clinical details essential to accurately capturing nursing practice in a “data-reuse-friendly” form;”*

*(vgl. Henry & Mead 1997)*

## ■ Authors claim for example:

- ❖ Complete and comprehensive depth and level of detail with sufficient granularity to illustrate the clinical process; clinical benefit (Bakken Henry et al. 1998, Zielstorff 1998, Gordon 1998, Von Krogh et al. 2012)
- ❖ Unambiguity of the concepts without redundancy, avoidance of overlaps, management of synonyms, definitions (Bakken Henry et al. 1998, Zielstorff 1998)
- ❖ Hierarchies and inheritance with clear references to parent-child relationships (Bakken Henry et al. 1998, Zielstorff 1998)
- ❖ Attributes such as modifiers to illustrate eg severity (Bakken Henry et al. 1998, Zielstorff 1998)
- ❖ Context-free terms/concepts (Bakken Henry et al. 1998, Zielstorff 1998)
- ❖ Each term of the classification has a unique identifier (Zielstorff 1998)
- ❖ Reliability and validity of the concepts (Gordon 1998)

- Citation: Lunney, 2008

*“Accuracy of nurses’ data interpretations (diagnoses) should be a serious concern of nurses in both practice and education because interpretations of patient data serve as the basis for selecting the nursing interventions that will achieve positive patient outcomes. Accuracy of nurses’ diagnoses is defined as a rater’s judgment of the match between a diagnostic statement and patient data”.*

## ■ Authors claim for example:

- ❖ Complete and comprehensive depth and level of detail with sufficient granularity to illustrate the clinical process; **clinical benefit** (Bakken Henry et al. 1998, Zielstorff 1998, Gordon 1998, Von Krogh et al. 2012)
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- ❖ Context-free terms/concepts (Bakken Henry et al. 1998, Zielstorff 1998)
- ❖ Each term of the classification has a unique identifier (Zielstorff 1998)
- ❖ Reliability and validity of the concepts (Gordon 1998)

- What exactly is meant by that?



**Comprehensive depth and level of detail with sufficient granularity** to illustrate the clinical process and to ensure a clinical benefit



**Definition:** Semantic clarity/accuracy of a linguistic expression (linguistics)  
 degree of aggregation of data (computer science)



**Broad granularity:**

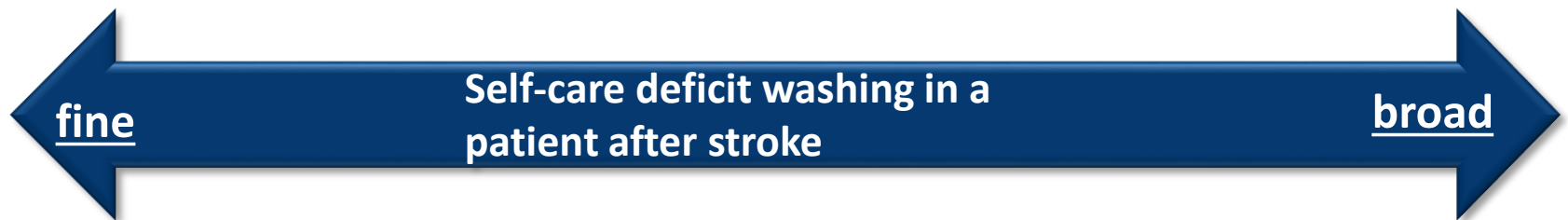
Is the statement  
 "France is  
 hexagonal"?



## Fine granularity:

In a detailed and fine description of France in regard to the form, the statement France has the shape of a hexagon would be false.

The **granularity** (latin 'granum', grain) of a linguistic expression provides information on its (semantic) clarity (expressiveness, unambiguity of terms).



The patient is **unable to carry out personal hygiene independently** due to a **hemiplegia/hemiparesis**

Characteristics:

- Is unable to wash/dry certain parts of the body
- Flaccid paralysis of the affected side
- Ignores the affected side
- Disturbed balance when sitting

Etiology:

- Cerebral vascular accident

**Bathing self-care deficit**

Defining characteristics>

- Inability to dry body
- Inability to get bath supplies
- Inability to obtain water source

Related factor:

- Neuromuscular impairment

**Wash the entire body**

- Severely impaired

**Dry the entire body**

- Severely impaired

# Granularity of nursing classifications and its meaning

Fine granularity  
Specific formulation

versus  
versus

broad granularity  
abstract formulation



How accurate must nursing diagnoses describe the patient's condition or reflect what we observe/perceive/diagnose?



# Nursing care plan with ICF

*International Classification of Functioning, Disability and Health*



*Mr. Schuster*

Nursing diagnosis	Defining characteristic:	Related factor
Oral swallowing • <i>Problem moderate</i>	-	-

# Nursing care plan with NANDA-I



*Mr. Schuster*

Nursing diagnosis	Defining characteristic:	Related factor
Impaired swallowing	<ul style="list-style-type: none"> <li>• Choking</li> <li>• Cough</li> </ul>	Cerebral palsy

# Nursing care plan with ENP



*Mr. Schuster*

Nursing diagnosis	Characteristics	Etiologies
<p>The patient <b>only chokes when drinking</b>, swallowing is <b>impaired in the oral transport/pharyngeal stage</b></p>	<ul style="list-style-type: none"> <li>• Expresses fear of drinking</li> <li>• Cough/throat cleaning during/after swallowing fluids</li> <li>• Refuses the food/fluid intake</li> <li>• Wet/gurgling voice quality after swallowing</li> </ul>	<p>Bolus slides predeglutitive (before the actual swallowing) into the throat</p> <p>Dementia</p>

# Case study Mr. Schuster



*Mr. Schuster*

As a result of a progressive dementia, Mr. Schuster chokes when drinking.

He often coughs after drinking or clears his throat. He often refuses drinking and prefers eating soups with a creamy consistency.

Because of the increase of the nursing problem and concerns about pneumonia as a result from microaspiration, you carry out a case review. In addition, there are signs of fluid deficit of Mr. Schuster due to avoidance attitude.



# Nursing care plan with ICF

*International Classification of Functioning, Disability and Health*



*Mrs. Meier*

<b>Nursing diagnosis</b>	<b>Defining characteristic:</b>	<b>Related factor</b>
Urinary continence <i>* Problem moderate</i>	-	-

# Nursing care plan with NANDA-I



*Mrs. Meier*

Nursing diagnosis	Defining characteristic:	Related factor
Functional urinary incontinence	<ul style="list-style-type: none"> <li>Senses need to void</li> </ul>	Impaired cognition

# Nursing care plan with ENP



*Mrs. Meier*

Nursing diagnosis	Characteristics	Etiologies
<p>The resident-- is <b>unable to avoid urine loss</b> with an intact urogenital tract (functional urinary incontinence)</p>	<ul style="list-style-type: none"> <li>• Is unable to find the way to the toilet</li> <li>• Is unable to undress for elimination independently</li> <li>• Repeatedly wet bed-clothes/bed</li> <li>• Is able to sense urgency</li> </ul>	<p>Limited cognitive abilities</p> <p>Dementia with disorientation to place</p>



*Mrs. Meier*

As a result of a progressive dementia, Mrs. Meier increasingly wets herself.

When asked if she feels an urge to urinate, she is able to respond adequately. But she is unable to find the toilet alone and has a need for support in carrying out the elimination. Thus she is unable, for example, to undress prior to elimination independently.



How accurate must nursing diagnoses describe the patient's condition or reflect what we observe/perceive/diagnose to plan adequate nursing interventions



## Extract of a validation study of ENP

„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 confirmed by the results of previously carried out cross-mapping studies.

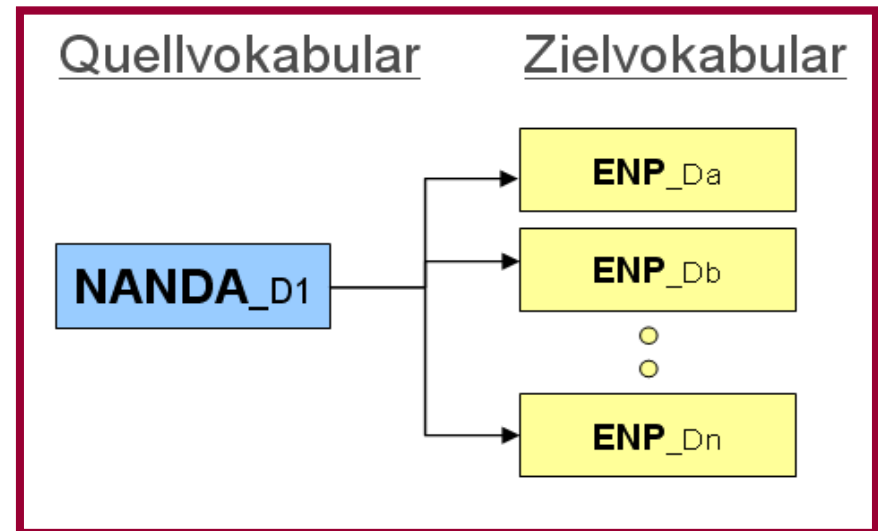
- *Hyun und Park 2002*
- *Berekoven et al. 2002*
- *Burkhart und Androwich 2004*
- *Hübner und Giehoff 2003*
- ...

## RESEARCH DESIGN

Non experimental, descriptive, comparative cross-sectional study

## RESEARCH METHOD

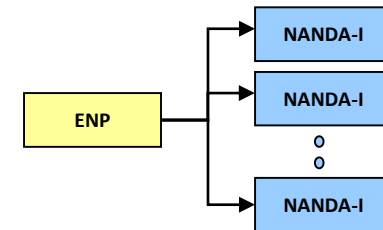
**Bi-directional cross-mapping**  
of NANDA-I  
and ENP nursing diagnoses



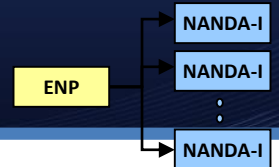
**Expert rating of the cross mappings** in terms of completeness, expressiveness and unambiguity

- Q1 Can the content of NANDA-I 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-I?
- Q4 How do ENP nursing diagnoses represent NANDA-I nursing diagnoses statements?





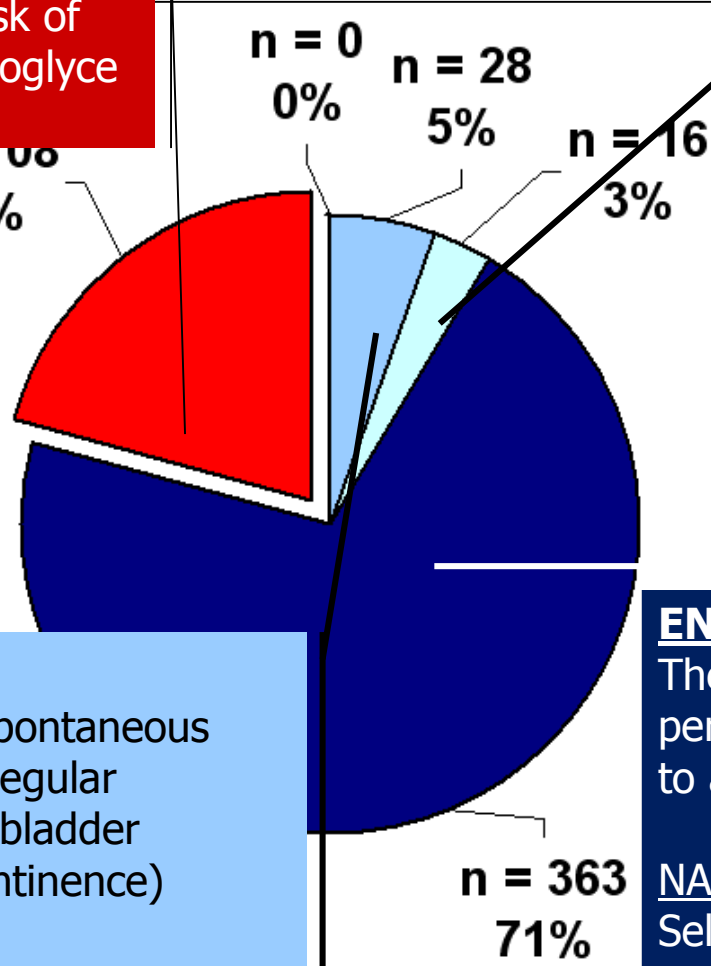
- Same**                      source vocabulary is identical in wording
  
- Similar**                    source vocabulary is comparable, or alike in substance to the term in the target vocabulary
  
- Broader**                    source vocabulary is larger in scope, or less specific
  
- Narrower**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



**ENP**

The patient is at risk of hyperglycemia/hypoglycemia

ENP  
The patient has a spontaneous release of urine at regular intervals at a given bladder volume (reflex incontinence)  
**NANDA-I**  
Reflex urine incontinence



ENP  
The patient is at risk of an allergic reaction  
**NANDA-I**  
Danger of an allergic reaction caused by latex

**ENP**  
The patient is unable to carry out personal hygiene independently due to a hemiplegia/hemiparesis  
**NANDA-I**  
Self care deficit: personal hygiene

- similar
- broader
- narrower

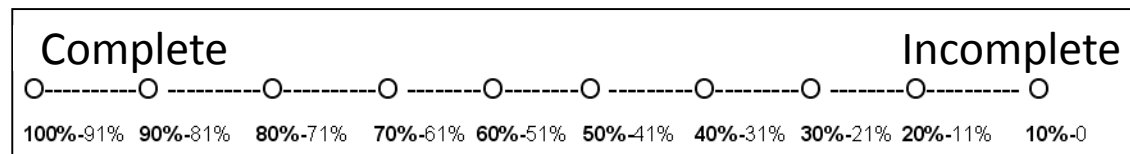
## Evaluation Table:

NANDA 1	ENP gesamt	ENP a	ENP b	ENP c	ENP d	ENP e
Kennzeichen	Kennzeichen					
K 1	K a	x				
	K b		x			
K2	K c			x		
	K d				x	
K 3	K e					x
	K f	x				
Ursachen	Ursachen					
U1	U a	x				
	U b		x			
U 2	U c			x		
	U d				x	
U 3	U e					x
	U f		x			

**Evaluation Categories: Accuracy, expressiveness, completeness**

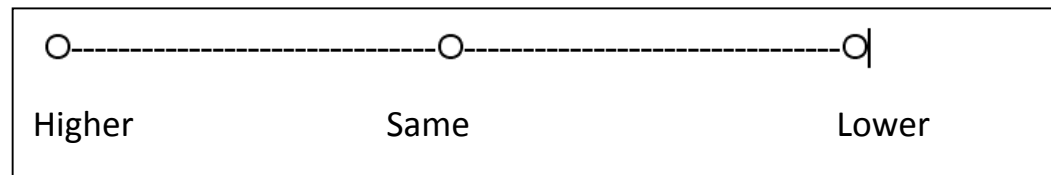
## NANDA → ENP mapping using related factors/characteristics und related factors/etiologies

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)?

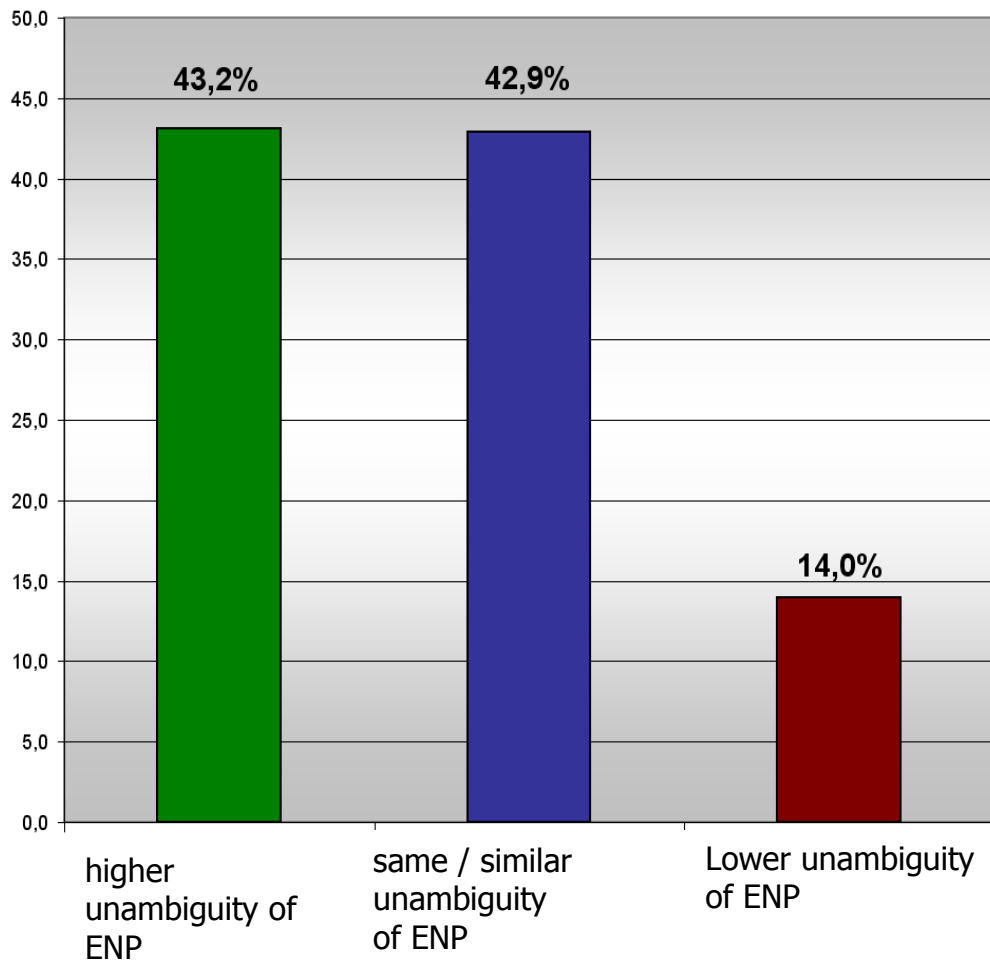


F4\_2 How do you judge the completeness of the ENP nursing diagnoses set (with characteristics/etiologies) in comparison with the expressiveness of the NANDA nursing diagnoses (with Defining characteristics/Related Factors)?

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)?

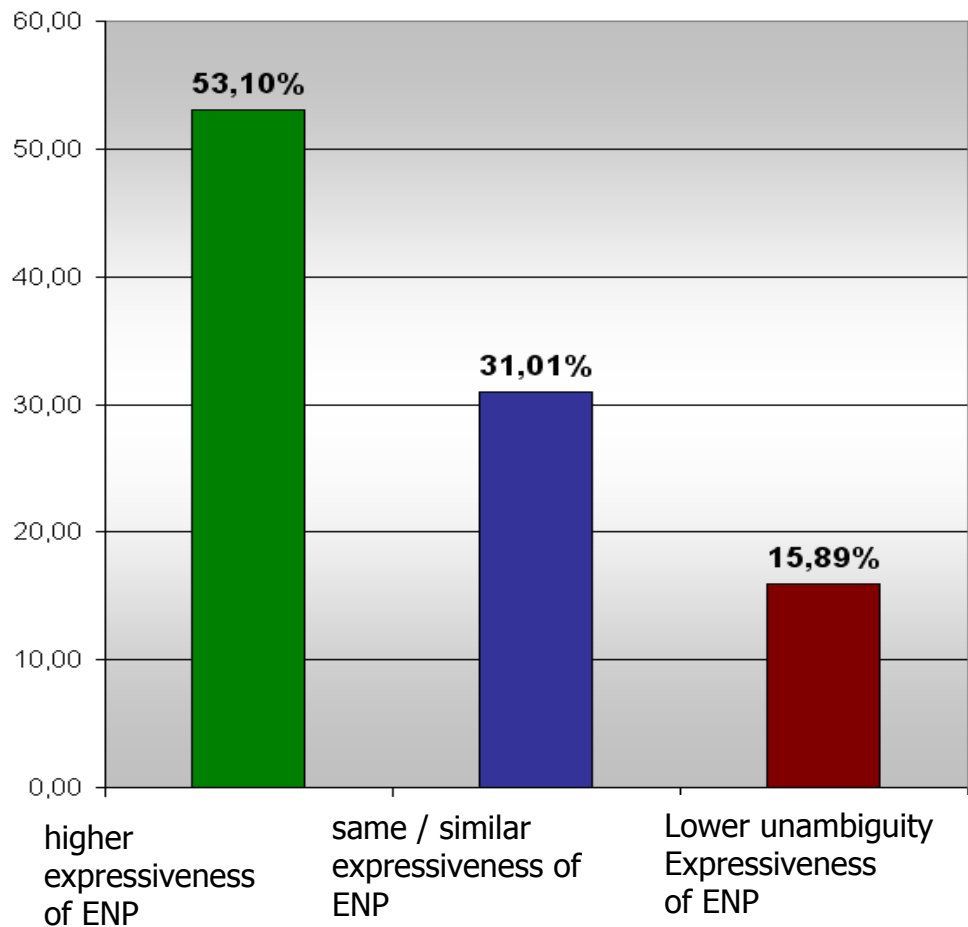


Bar chart: allocation of the rater judgment in percent



**Compared to NANDA-I**

Bar chart: allocation of the rater judgment in percent



**Compared to NANDA-I**

It was shown in the study that a finer granularity contributes to an increase in expressiveness and clarity/accuracy.

**NANDA-I:**

Dysfunctional ventilatory weaning response

**ENP:**

The patient is ventilated, there is a risk of complications

**NANDA-I:**

Ineffective therapeutic regimen management

**ENP:**

The patient is at risk of not achieving health related aims due to a lack of information/skills associated with diabetes

Do you have any questions?

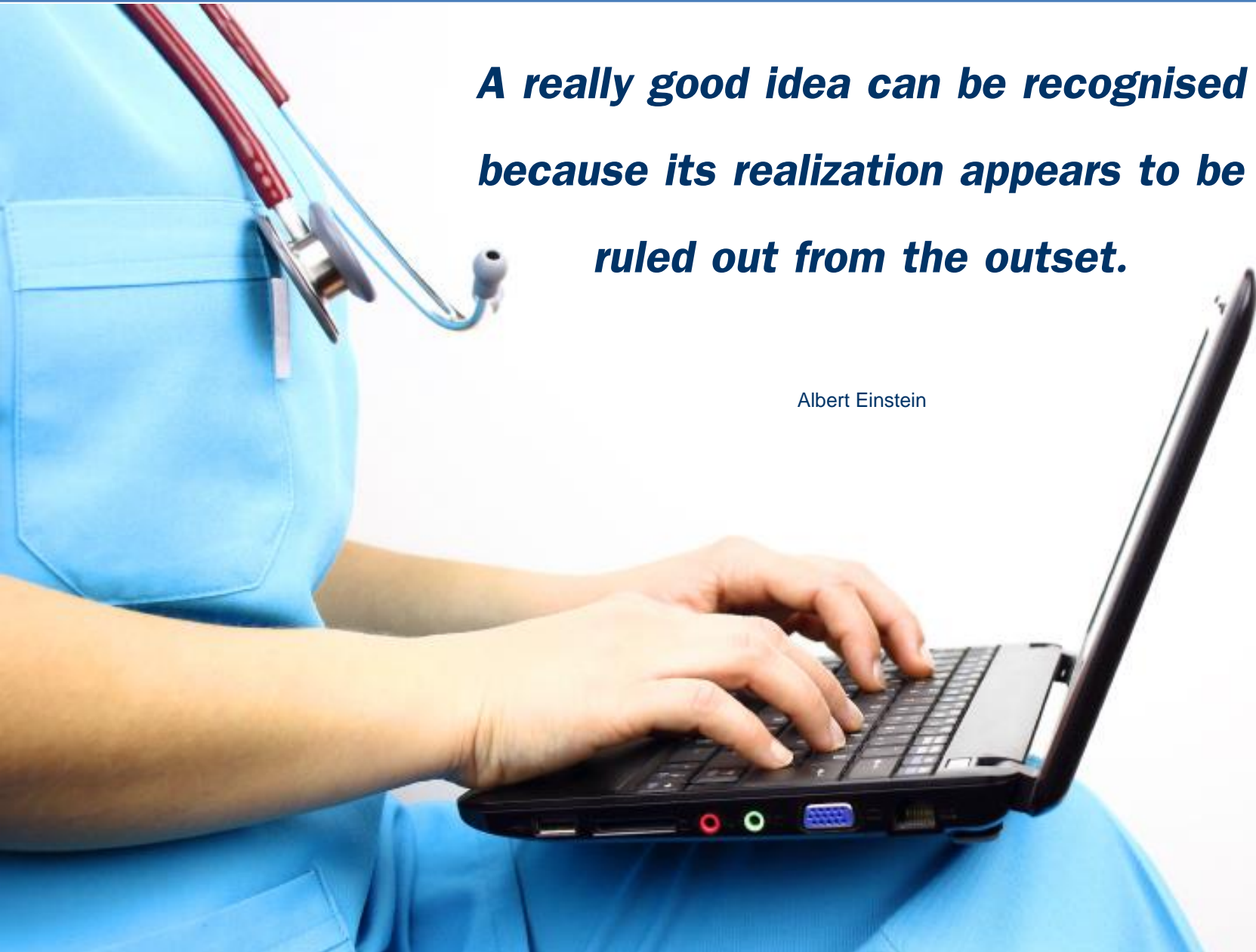




Thank you for your attention!

***A really good idea can be recognised  
because its realization appears to be  
ruled out from the outset.***

Albert Einstein



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