

# Using SNOMED CT enabled EMRs to assess the quality of care for patients with head and neck tumors

Netherlands National Federation of University Medical Centers (NFU)

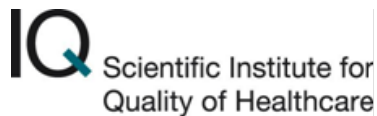
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**SNOMED CT Implementation Showcase  
2014 Amsterdam**



# Introduction of myself

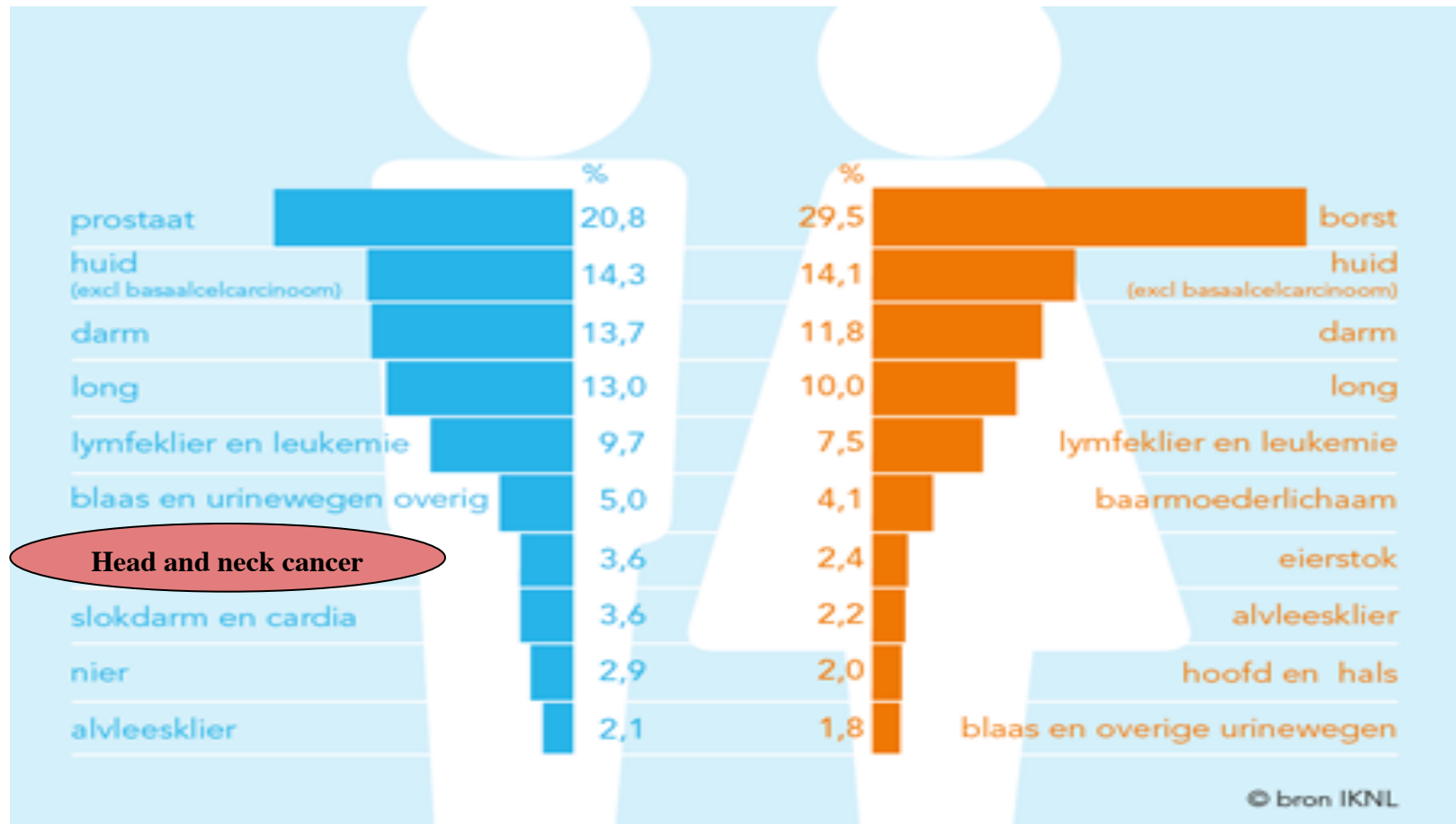


- Health Sciences University Maastricht The Netherlands
- Advisor/policymaker on Quality and Safety in healthcare
- PhD-Research on improving integrated care for patients with cancer in particular patients with head and neck cancer
- Applied Researcher and Projectleader

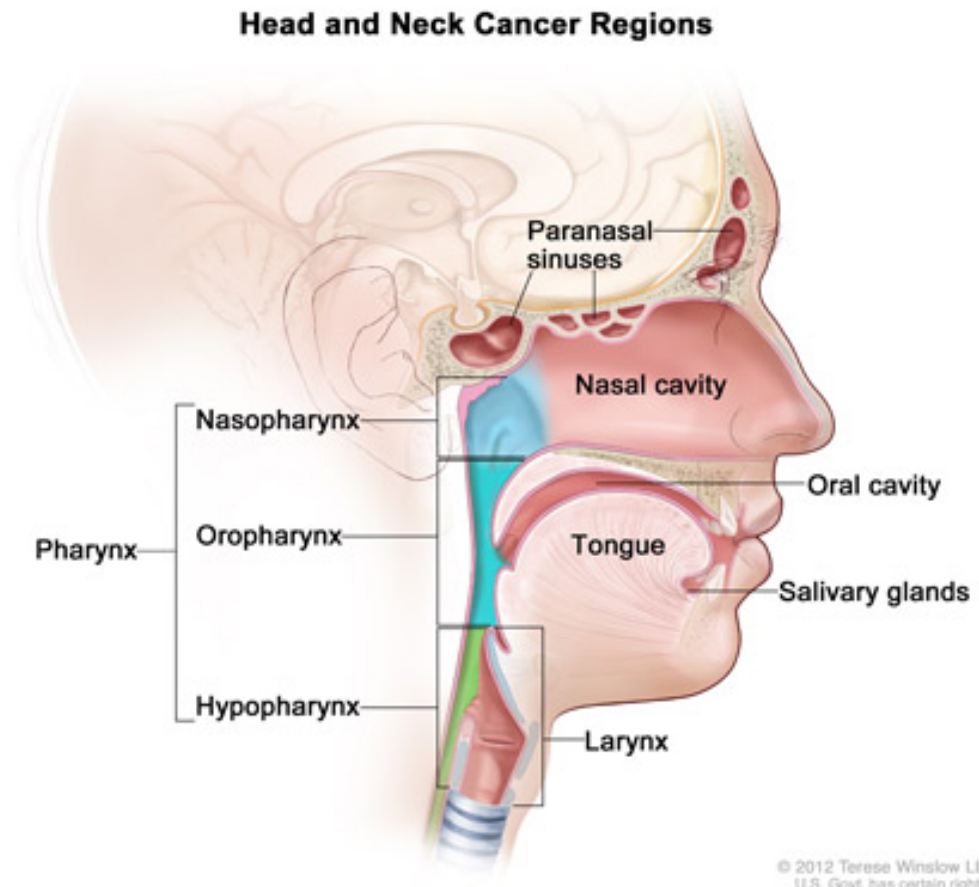
# Content

- 1) Patients with head and neck cancer
- 2) How do we assess the quality of care?
- 3) What is registred in EMRs?
- 4) To what extent is the information for QI available?
- 5) To what extent can we use existing building blocks?
- 6) Conclusions
- 7) Next steps

# 1. Patients with head and neck cancer



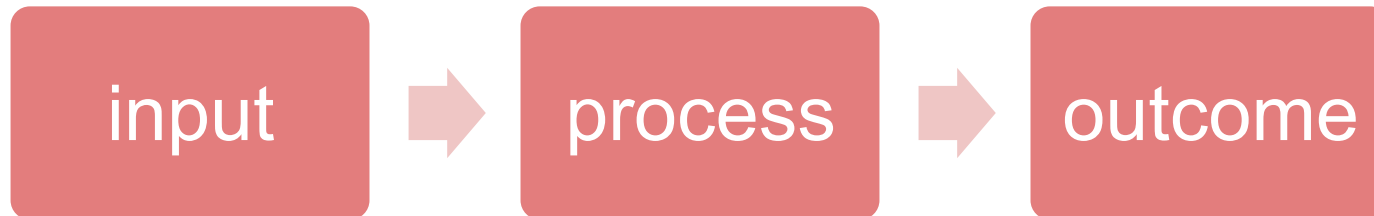
# 1. Patients with head and neck cancer





## 2. How do we assess the quality of care?

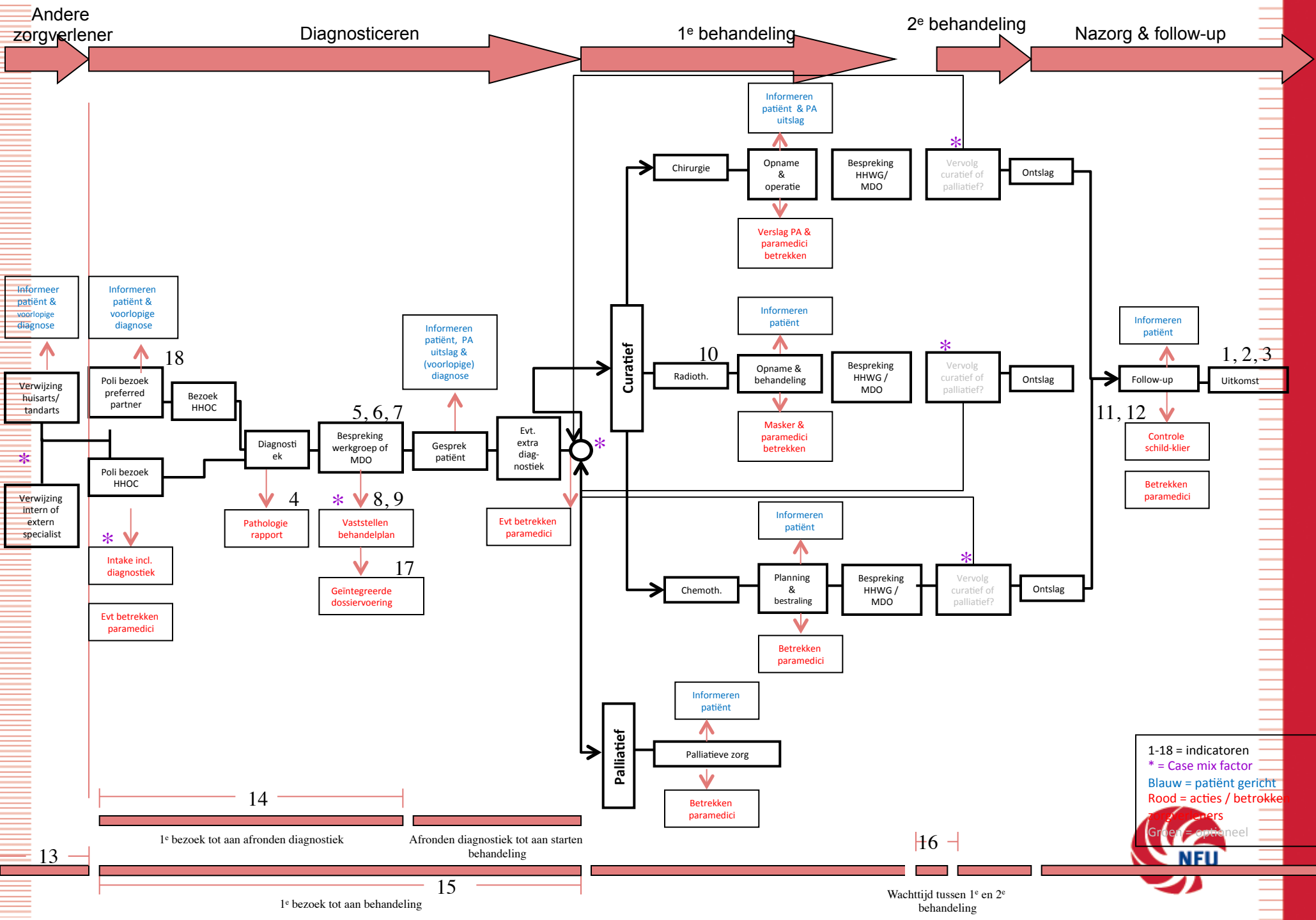
Indicators are explicitly defined and measurable items referring to the structures, processes, or outcomes of care



*Improving the quality of health care*

**Research methods used in developing and applying  
quality indicators in primary care**

S M Campbell, J Braspenning, A Hutchinson, M N Marshall  
BMJ, 2003

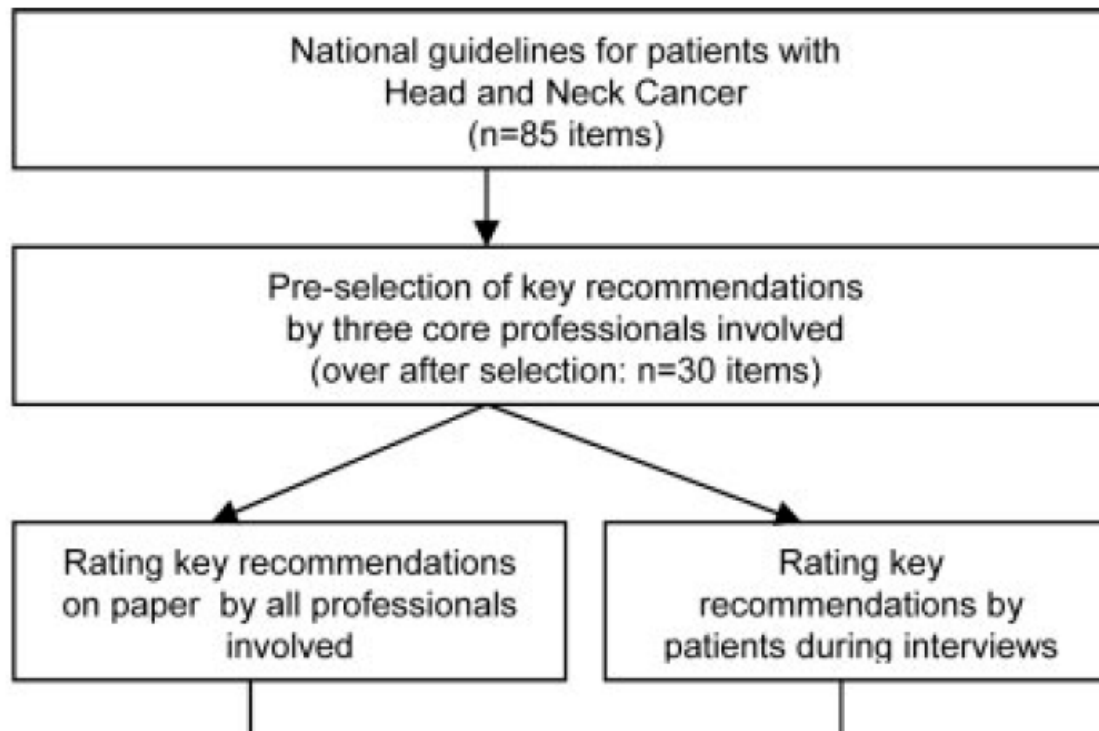




## 2. How do we assess the quality of care?

### QUALITY OF INTEGRATED CARE FOR PATIENTS WITH HEAD AND NECK CANCER: DEVELOPMENT AND MEASUREMENT OF CLINICAL INDICATORS

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## 2. How do we assess the quality of care?

Number of quality indicators  
Medical = 16

area	e.g.
Outcome indicators (n=3)	<i>% cancer recurrence within 5 years</i>
Diagnostic indicators (n=6)	<i>% patients discussed in MDT</i>
Treatment indicators (n=1)	<i>% patients seen by a dental team</i>
Follow-up indicators (n=2)	<i>% check thyroid function</i>
Coordination and organization (n=4)	<i>% start treatment within 28 days</i>

## 2. How do we assess the quality of care?

Number of quality indicators  
Paramedical = 21

area	e.g.
Outcome indicators (n=3)	<i>% cancer recurrence within 5 years</i>
Nutritional care (n=3)	<i>% malnutrition screening</i>
Psychosocial care (n=3)	<i>% assessment psychosocial need</i>
Dental care (n=3)	<i>% mucositis prevention</i>
Physical functioning (n=3)	<i>% post surgical screening</i>
Speech therapy (n=3)	<i>% oral revalidation</i>
Coordination and organization (n=3)	<i>% transmural transfer</i>

## 2. How do we assess the quality of care?

Number of quality indicators

e.g.

Structure indicators (n=3)

***Availability of a casemanager***

### 3. What is registred in EMRs?



By interviewing Head and Neck specialists, nurses and paramedics



# 3. What is registred in EMRs?



**What information is being registred for patient care?**

## 4. To what extent information for QI available?

Number of indicators  
Medical = 16

Needed variables	e.g.
General (n= 28)*	date of birth; smoker; social status
Surgical (n=7)	type of surgery; date of surgery
Radiotherapy (n= 7)	dosis; start
Chemotherapy (n= 7)	dosis; start
Follow-up (n=8)	dismissal; readmissions
Pathology report (n= 28)	tumor size; tumor classification

\* Including casemix and identification

## 4. To what extent information for QI available?

Number of indicators  
Paramedical = 21

Needed variables	e.g.
Nutritional care (n=11)	loss of weight; BMI
Psychosocial care (n=6)	assessment date
Dental care (n=6)	assessment date
Physical functioning (n= 9)	date preoperative screening
Speech therapy (n=5)	assesement swallowing problems
Follow-up (n=7)	aftercare, weight



## 4. To what extent information for QI available?



1. Not registered
2. Registered in the EMR in any possible way (including free text)
3. Structured registered (means NOT free text)
4. Registered using terminology standards (SNOMED-CT, ICD-10)

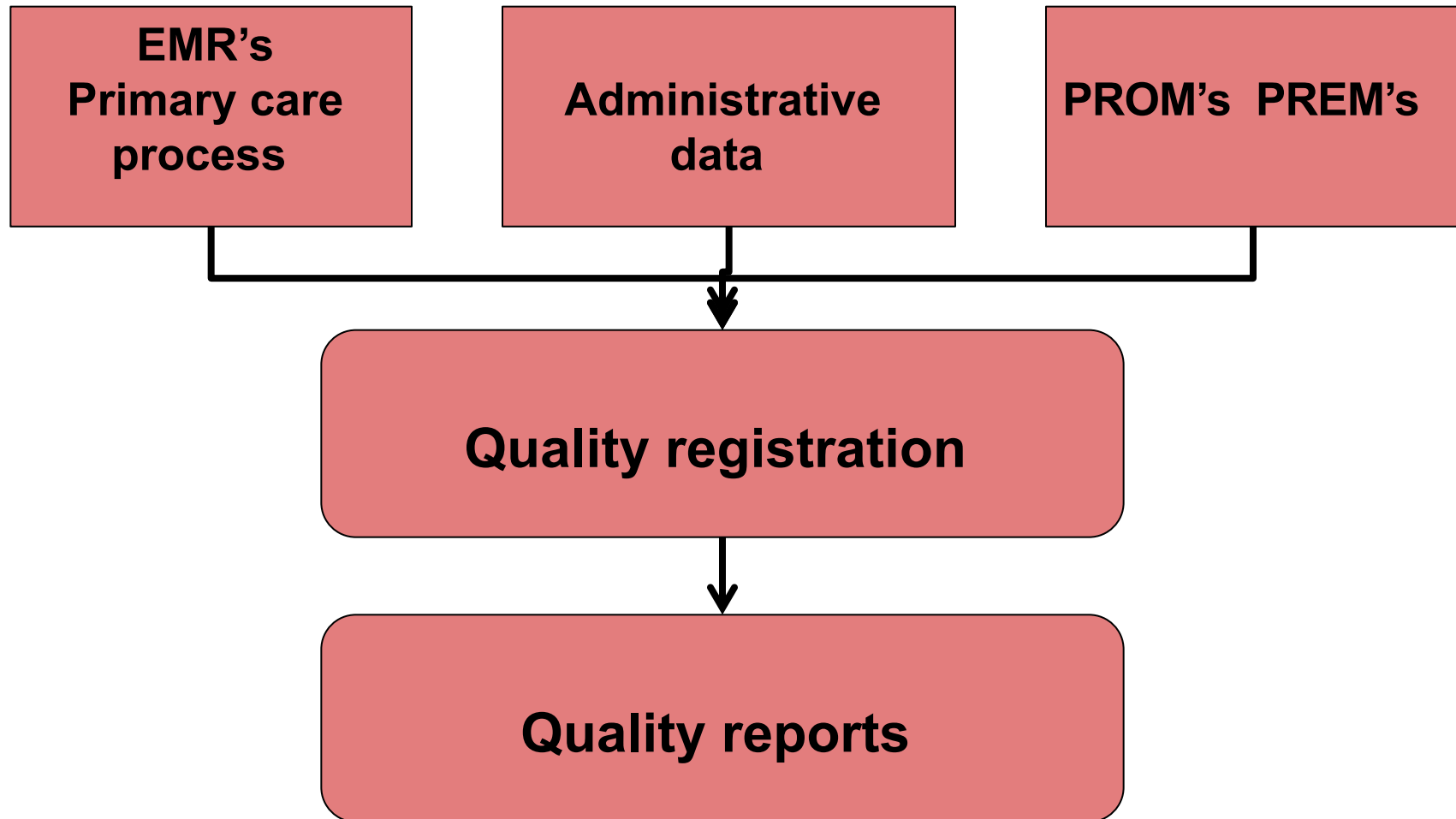
## 4. To what extent information for QI available?



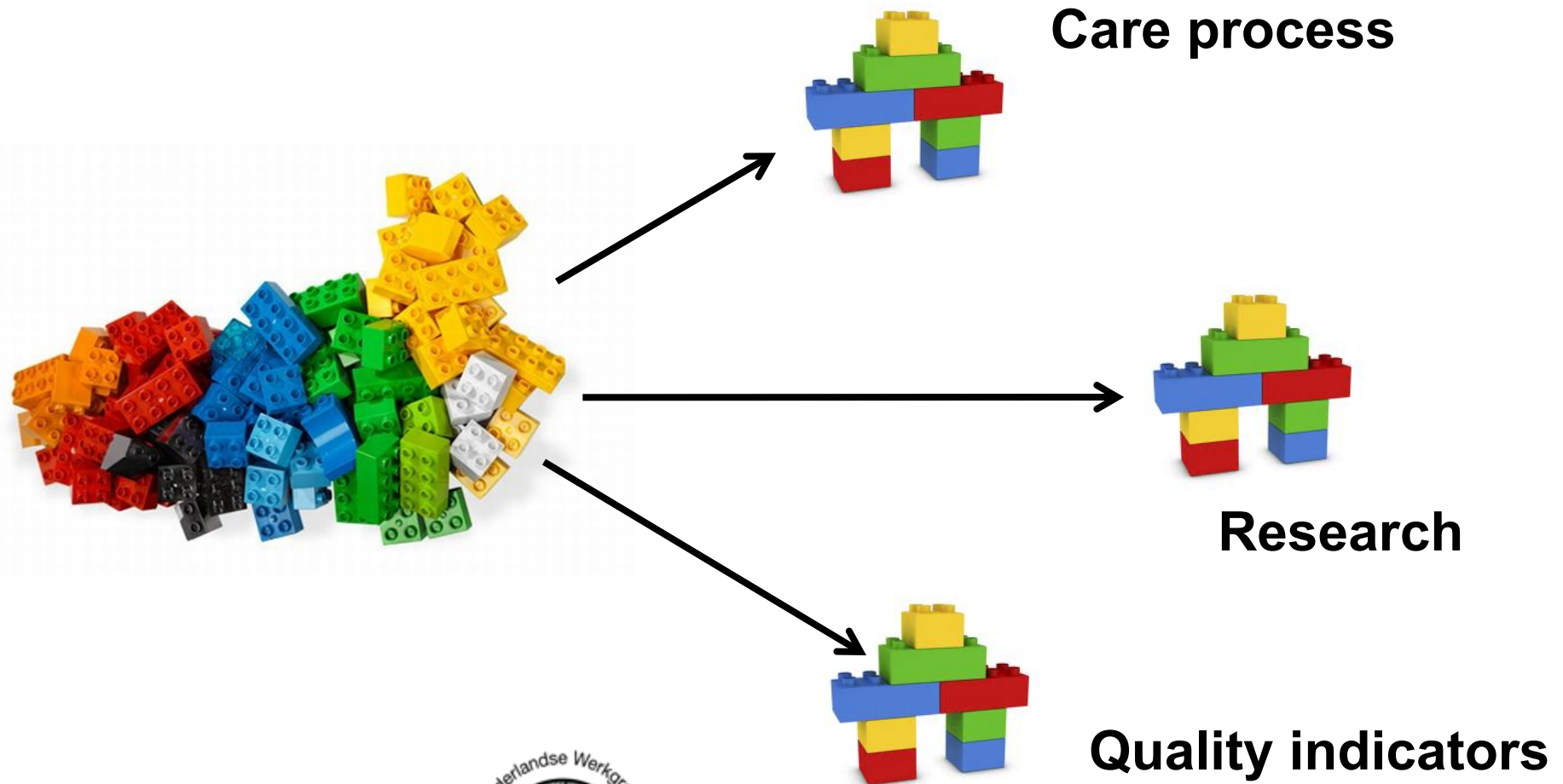
Overall conclusion:

Analysis is still going on but general conclusion is that most variables are registered but not structured and standardized and not only from EMRs!

# Sources for variables needed for Quality Indicators



# 5. To what extent can we use existing clinical building blocks?



<b>CCR/CCD</b>	<b>Klinische bouwsteen</b>
Header	OverdrachtPatient
	OverdrachtZorgaanbieder
	OverdrachtZorgverlener
Sectie 1 – Payers	OverdrachtBetaler
Sectie 2 – Advance Directives	OverdrachtBehandelAanwijzing
Sectie 3 – Support	OverdrachtContactpersoon
Sectie 4 – Functional Status	OverdrachtFunctioneleStatus
	OverdrachtBartheIndex
Sectie 5 – Problems	OverdrachtProbleem
Sectie 6 – Family History	OverdrachtFamilieanamnese
Sectie 7 – Social History	OverdrachtBurgerlijkeStaat
	OverdrachtDrugsgebruik
	OverdrachtIntoxicatieAlcohol
	OverdrachtIntoxicatieTabak
	OverdrachtLevensovertuiging
	OverdrachtNationaliteit
	OverdrachtOpleiding
OverdrachtWoonsituatie	
Sectie 8 – Alerts	OverdrachtAlert
Sectie 9 – Medications	OverdrachtMedicatie
Sectie 10 – Medical Equipment	OverdrachtMedischeHulpmiddel
Sectie 11 – Immunizations	OverdrachtVaccinatie
Sectie 12 – Vital Signs	OverdrachtAdemfrequentie
	OverdrachtBloeddruk
	OverdrachtGewicht
	OverdrachtGlasgowComaScale
	OverdrachtHartfrequentie
	OverdrachtLengte
	OverdrachtO2Saturatie
	OverdrachtPijnscore
	OverdrachtPolsfrequentie
	OverdrachtTemperatuur
Sectie 13 – Results	OverdrachtLabUitslag
	OverdrachtTekstUitslag
Sectie 14 – Procedures	OverdrachtProcedure
Sectie 15 – Encounters	OverdrachtContact
Sectie 16 – Plan of Care	OverdrachtPlanOfCare
Sectie 17 – Healthcare Providers	OverdrachtZorgverlener

# Standards used

<b>Standaard</b>	<b>Registratie</b>
ICD-10	Classificatie medische diagnose
ICD-O-3	Classificatie oncologische diagnose
SNOMED-CT	Codering medische gegevens
(C/P/R) TNM	Stadiering tumor
ACE-27	Specifieke oncologische comorbiditeit
VAS	Classificatie van pijnscores
CTC/TOG	Classificatie oncologische toxiciteiten
Karnofsky	Classificatie functionele toestand patiënt

# Specific information elements and available building blocks

Informatie-element (mid-level)	Klinische bouwsteen beschikbaar?
Voorgeschiedenis	Ja, OverdrachtProbleem
Anamnese – algemeen	Ja, OverdrachtProbleem
Anamnese – familie	Ja, OverdrachtFamilieanamnese
Anamnese – sociaal	Ja, OverdrachtWoonsituatie
Lichamelijk onderzoek – algemeen	Nee, maar in ontwikkeling
Lichamelijk onderzoek – gewicht	Ja, OverdrachtGewicht
Lichamelijk onderzoek – eetgewoonte	Nee, maar in ontwikkeling
Intoxicaties – alcohol	Ja, OverdrachtIntoxicatieAlcohol
Intoxicaties – drugs	Ja, OverdrachtDrugsgebruik
Intoxicaties – roken	Ja, OverdrachtIntoxicatieTabak
Allergieën	Ja, OverdrachtAlert
Medicatie	Ja, OverdrachtMedicatie
Comorbiditeit	Ja, OverdrachtProbleem
Tumor	Nee
Metastasering	Nee
Behandeling	Ja, OverdrachtProcedure
Complicaties	Ja, OverdrachtProbleem
Toxiciteit	Nee
Pijnscore(VAS)	Ja, OverdrachtPijnscore
Lab bepalingen	Ja, OverdrachtLabUitslag
MDO	Nee

# 5. To what extent can we use existing clinical building blocks?

## Results careproces patients with Head and Neck Cancer

1. Directly useful (e.g. CBB Weight)
2. Useful with modification (e.g. CBB Plan of care)
3. No CBB available (e.g. MDT and Tumor classification)



## 6. Conclusions en next steps

- Quality indicators need far more information elements than minimal necessary for the care process.
- Most information elements needed for Quality indicators that in EMRs is unstructured and not standardized (e.g. Snomed CT)
- A discussion is needed about which elements must be registred in EMRs for both the care process as quality indicators.
- Standardized registration needs to be improved

## 6. Conclusions and next steps

- New Clinical Building Blocs will be developed for a.o. MultiDisciplinary Team meetings and Tumor classification,
  - By specifications of existing blocs
  - By creating complete new blocs
- Test in practice which information elements can directly be extracted from EMRs
- Process evaluation of the usefulness of the building blocs

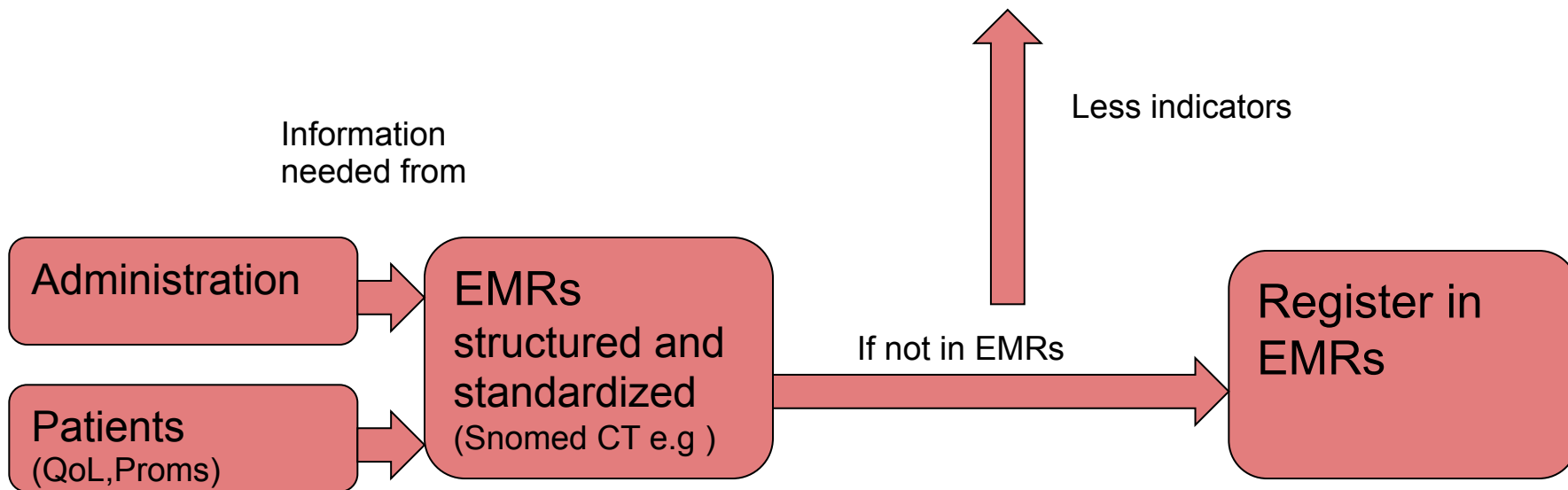
# 7. Take home message

*Registration at the source* implies that information elements needed for Quality indicators either

- must be registered in the EMRs (structured and standardized)
- OR
- the Quality indicator must be removed

Clinical Building Blocks (DCM), including using SNOMED CT, can help to improve structured and standardized registration.

# Quality Indicators HNC



More information

[www.nfu.nl](http://www.nfu.nl)

[www.nictiz.nl](http://www.nictiz.nl)



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