Using 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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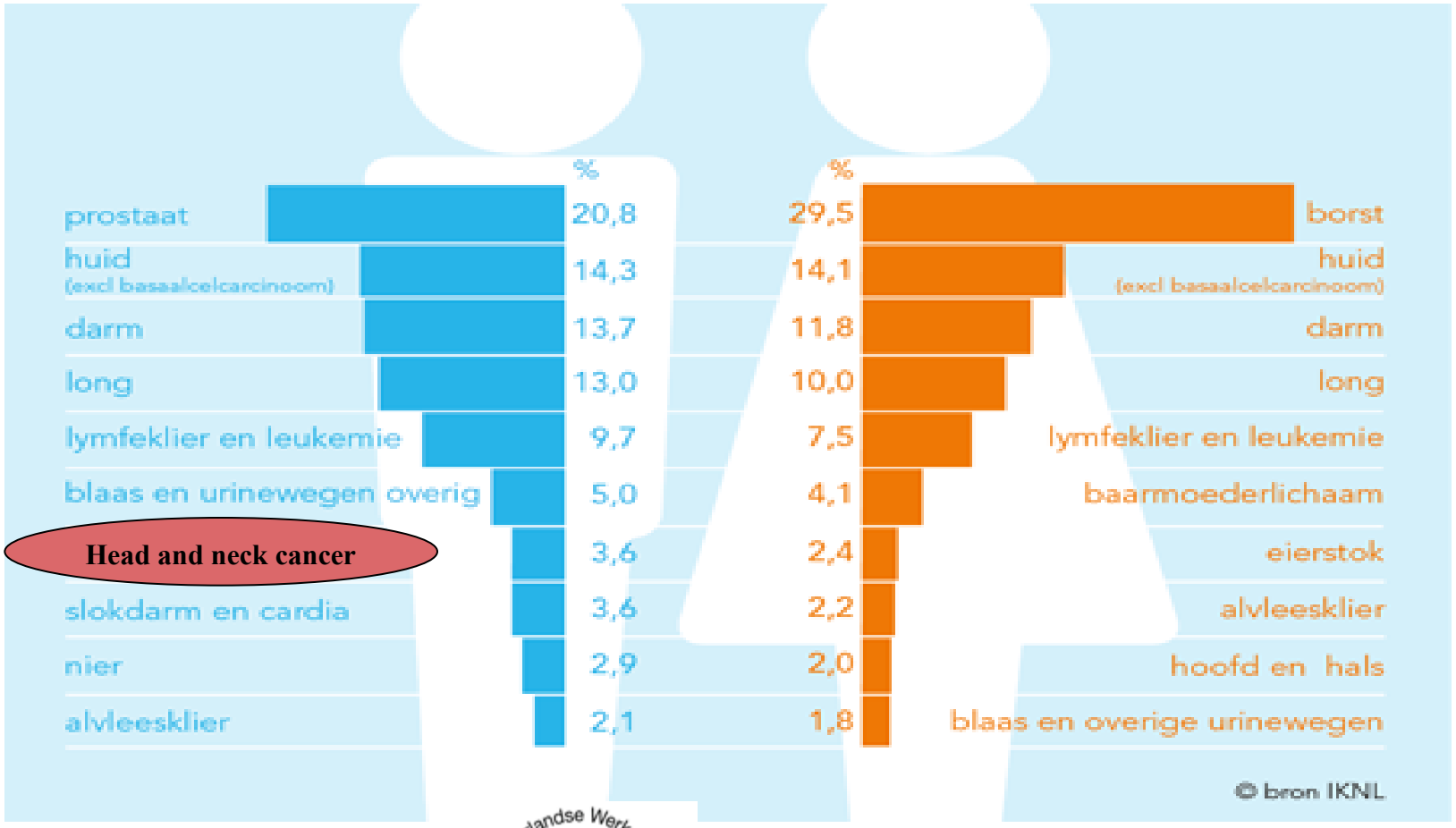
Content

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

1. Patients with head and neck cancer



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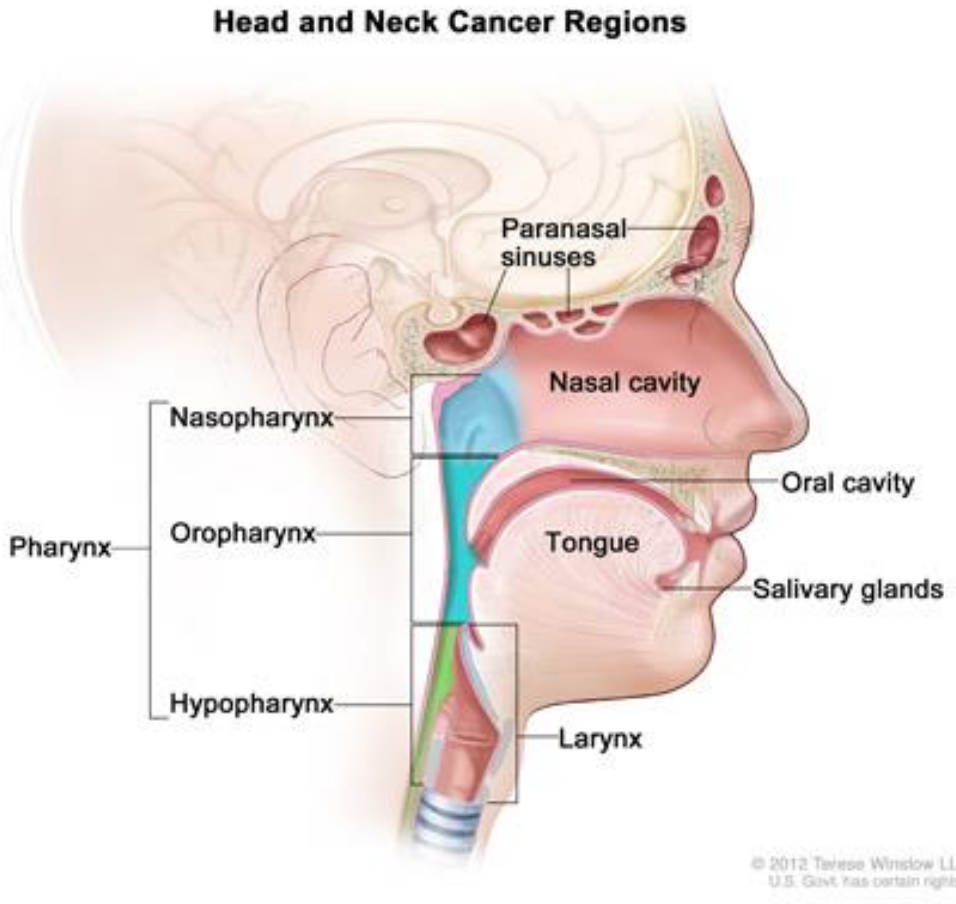
1. Patients with head and neck cancer



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Hoofd-HalsTumoren
Leeuwarden
(MCL/RIF)
Groningen
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Alkmaar
Amsterdam
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Amsterdam
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Rotterdam
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Nijmegen
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Maastricht
(MUMC)

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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

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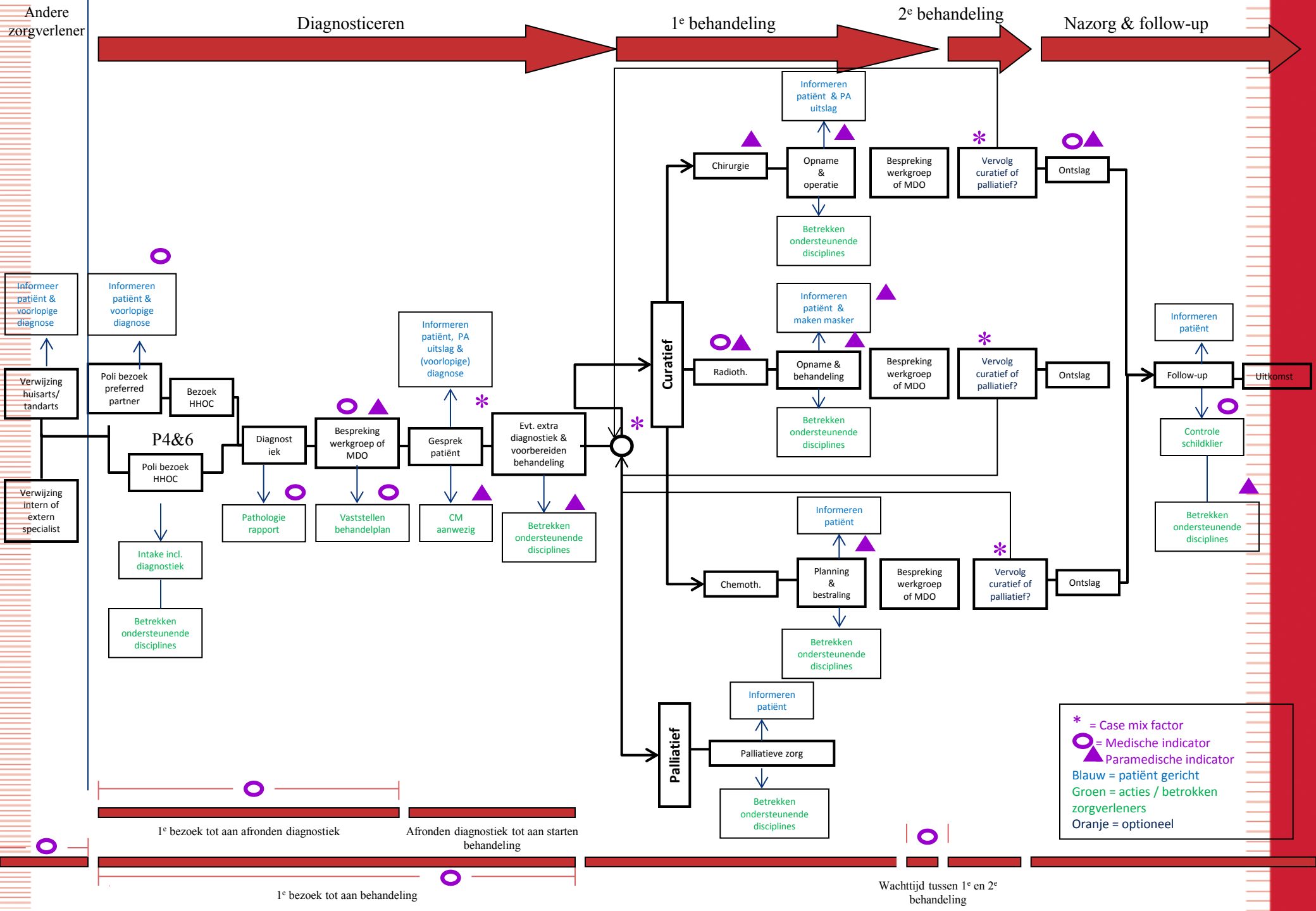

Andere zorgverlener
Diagnosticeren
1e behandeling
2e behandeling
Nazorg & follow-up
Informeer patiënt & voorlopige diagnose
Informeren patiënt & voorlopige diagnose
Verwijzing huisarts/ tandarts
Poli bezoek preferred partner
Bezoek HHOC
P4&6
Poli bezoek HHOC
Verwijzing intern of extern specialist
Intake incl. diagnostiek
Betrekken ondersteunende disciplines
Diagnostiek
Pathologie rapport
Bespreking werkgroep of MDO
Vaststellen behandelplan
Informeren patiënt, PA uitslag & (voorlopige) diagnose
Gesprek patiënt
CM aanwezig
Evt. extra diagnostiek & voorbereiden behandeling
Betrekken ondersteunende disciplines
Curatief
Chirurgie
Informeren patiënt & PA uitslag
Opname & operatie
Bespreking werkgroep of MDO
Vervolg curatief of palliatief?
Ontslag
Betrekken ondersteunende disciplines
Radioth.
Informeren patiënt & maken masker
Opname & behandeling
Bespreking werkgroep of MDO
Vervolg curatief of palliatief?
Ontslag
Betrekken ondersteunende disciplines
Chemoth.
Informeren patiënt
Planning & bestraling
Bespreking werkgroep of MDO
Vervolg curatief of palliatief?
Ontslag
Betrekken ondersteunende disciplines
Palliatief
Informeren patiënt
Palliatieve zorg
Betrekken ondersteunende disciplines
Informeren patiënt
Follow-up
Uitkomst
Controle schildklier
Betrekken ondersteunende disciplines
* = Case mix factor
= Medische indicator
Paramedische indicator
Blauw = patiënt gericht
Groen = acties / betrokken zorgverleners
Oranje = optioneel
1e bezoek tot aan afronden diagnostiek
Afronden diagnostiek tot aan starten behandeling
1e bezoek tot aan behandeling
Wachttijd tussen 1e en 2e behandeling

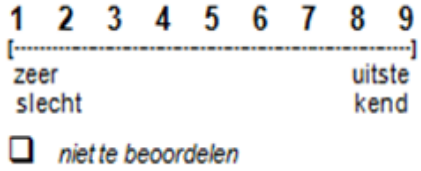
2. How do we assess the quality of care?

Developing indicators using Rand modified Delphi method

Step 1 Selection of key-recommendations from (inter)national literature & guidelines

Step 2 Individual rating by expert panel

1. relevance for prolonging the (disease free) survival
2. relevance for improving quality of life
3. relevance for the quality of the health care process
4. relevance for improving efficiency



Step 3 Panel consensus meeting

Step 4 Approval final set

2. How do we assess the quality of care?

Number of quality indicators Medical Care = 16	
area	**e.g.**
Outcome indicators (n=3)	***% cancer recurrence within 5 years***
Diagnostic indicators (n=6)	***% patients discussed in MDT***
Treatment indicators (n=1)	***% patients seen by a dental team***
Follow-up indicators (n=2)	***% patients seen by physiotherapist after neck dissection***
Coordination and organization (n=4)	***% start treatment within 28 days***

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2. How do we assess the quality of care?

Number of quality indicators Allied health care worker = 21	
area	**e.g.**
Outcome indicators (n=3)	***% cancer recurrence within 5 years***
Nutritional care (n=3)	***% malnutrition screening***
Psychosocial care (n=3)	***% assessment psychosocial need***
Dental care (n=3)	***% muscositis prevention***
Physical functioning (n=3)	***% post surgical screening***
Speech therapy (n=3)	***% revalidation of swallowing, speech and voice complaints***
Coordination and organization (n=3)	***% transmural transfer***
Structure indicators (n=3)	***Availability of a casemanager***

Content

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3. To what extent information for QI available?

Number of indicators Medical care = 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)	survival; readmissions
Pathology report (n= 28)	tumor size; tumor classification

** Including casemix and identification*

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3. To what extent information for QI available?

Number of indicators Paramedical care = 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)	assessement swallowing problems
Follow-up (n=7)	aftercare, weight

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3. To what extent information for QI available?

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

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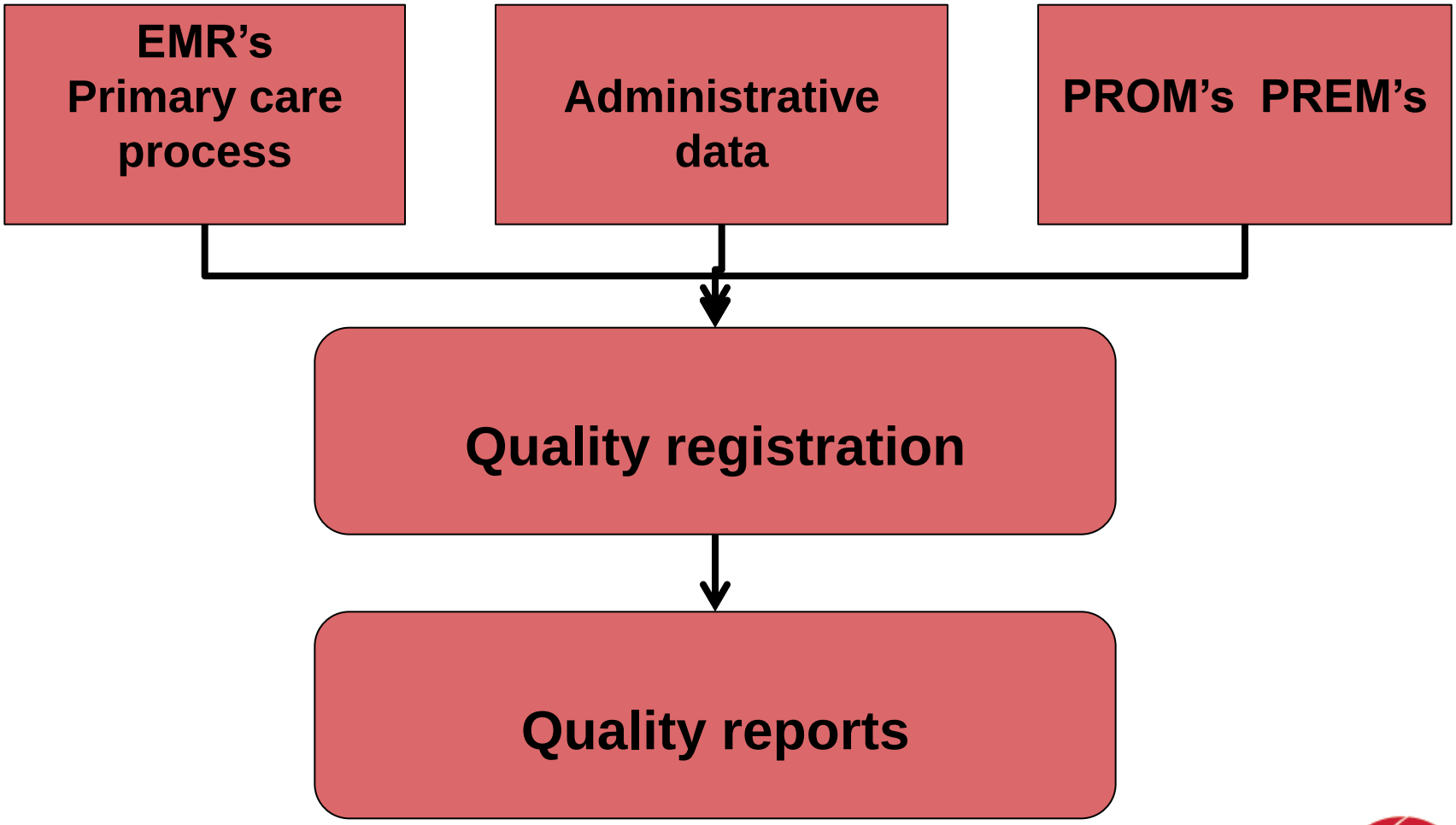
3. To what extent information for QI available?

Overall conclusion:

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

Sources for variables needed for Quality Indicators



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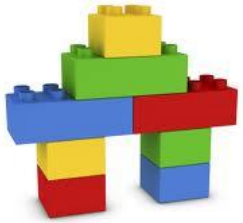
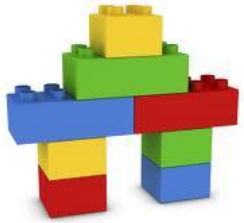
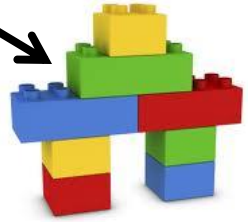
4. To what extent can we use existing clinical building blocks?



Care process
Including transfer



Research



Quality indicators

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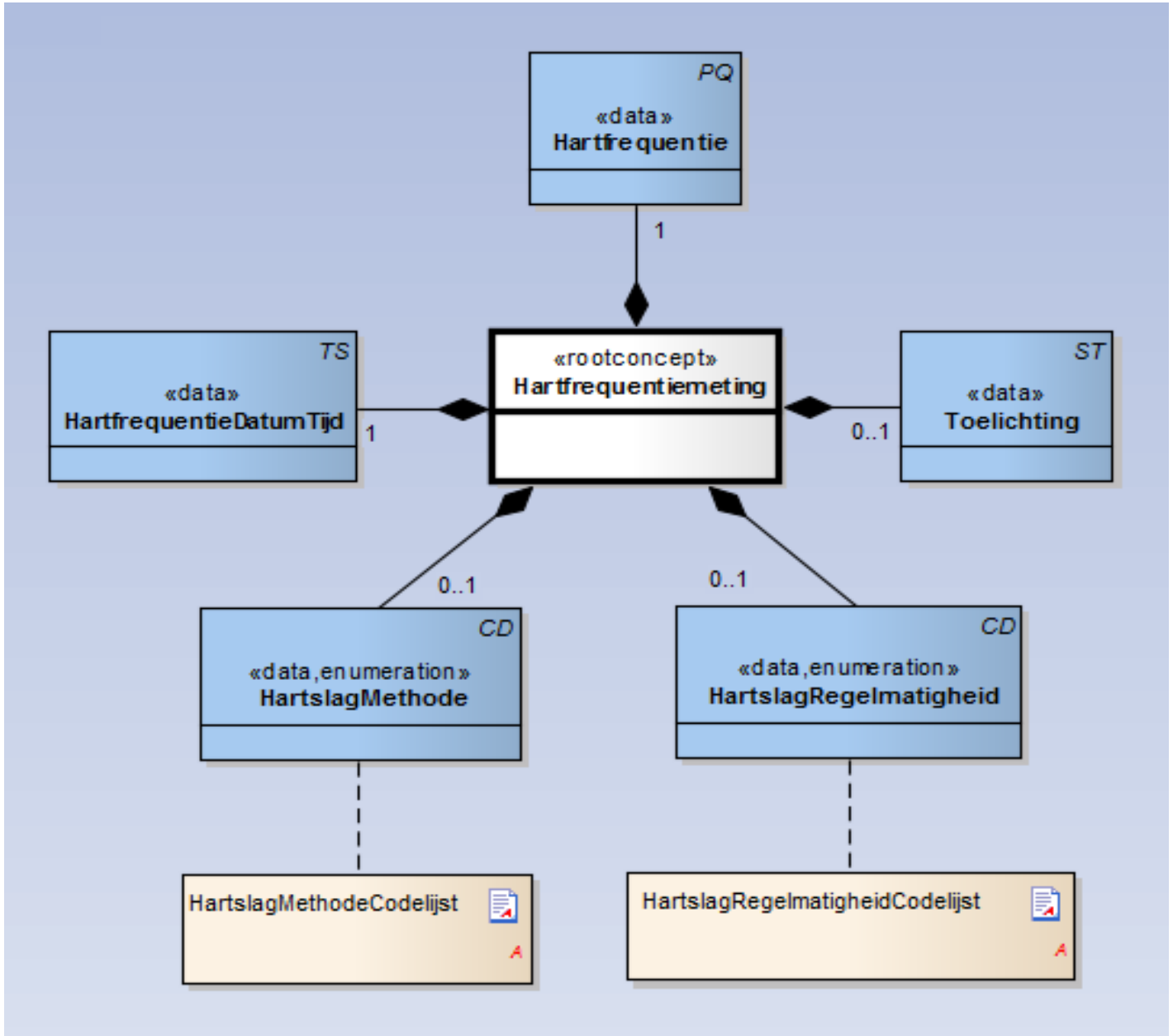
Detailed Clinical Models = Klinische Bouwstenen
(GENOEG = Generieke overdrachtsgegevens)

- Based upon CCR (Continuity of Care Record) structure
- SNOMED coded where possible
- Finished and first published, 2013 (v1.0)
- 40 medical, 40 nursing
- Implementation for transfer into C-CDA (HL7)

HartslagRegelmatigheidCodelijst			OID: 2.16.840.1.113883.2.4.3.11.60.40.2.12.3.1	
Concept Name	Concept Code	Coding Syst. Name	Coding System OID	Description
Regular	271636001	SNOMED CT	2.16.840.1.113883.6.96	regelmatige polsslag
Irregular	61086009	SNOMED CT	2.16.840.1.113883.6.96	onregelmatige polsslag

heartrate


PQ
«data»
Hartfrequentie
1
TS
«data»
HartfrequentieDatumTijd
1
«rootconcept»
Hartfrequentiemeting
0..1
ST
«data»
Toelichting
0..1
0..1
CD
«data,enumeration»
HartslagMethode
CD
«data,enumeration»
HartslagRegelmatigheid
HartslagMethodeCodelijst
A
HartslagRegelmatigheidCodelijst
A

CCR/CCD	Klinische bouwsteen
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 Equipement	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

Standaard	Registratie
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/RTOG	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

4. 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)

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5. Conclusions en next steps

Using EMRs to assess the quality of care for patients with head and neck tumors

Therefore……

- We developed quality indicators
- We verified if the variables or information pieces needed to measure the QI were available
- We checked if we could use the existing building blocks

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5. Conclusions

- Quality indicators need far more information elements than minimal necessary for the care process.

- Most information elements (or variables) needed for Quality indicators in EMRs is unstructured and not standardized (e.g. Snomed CT)

- Standardized registration needs to be improved.

- A discussion is needed about which variables should be registred in EMRs for both the care process as quality indicators (if not than less indicators!)

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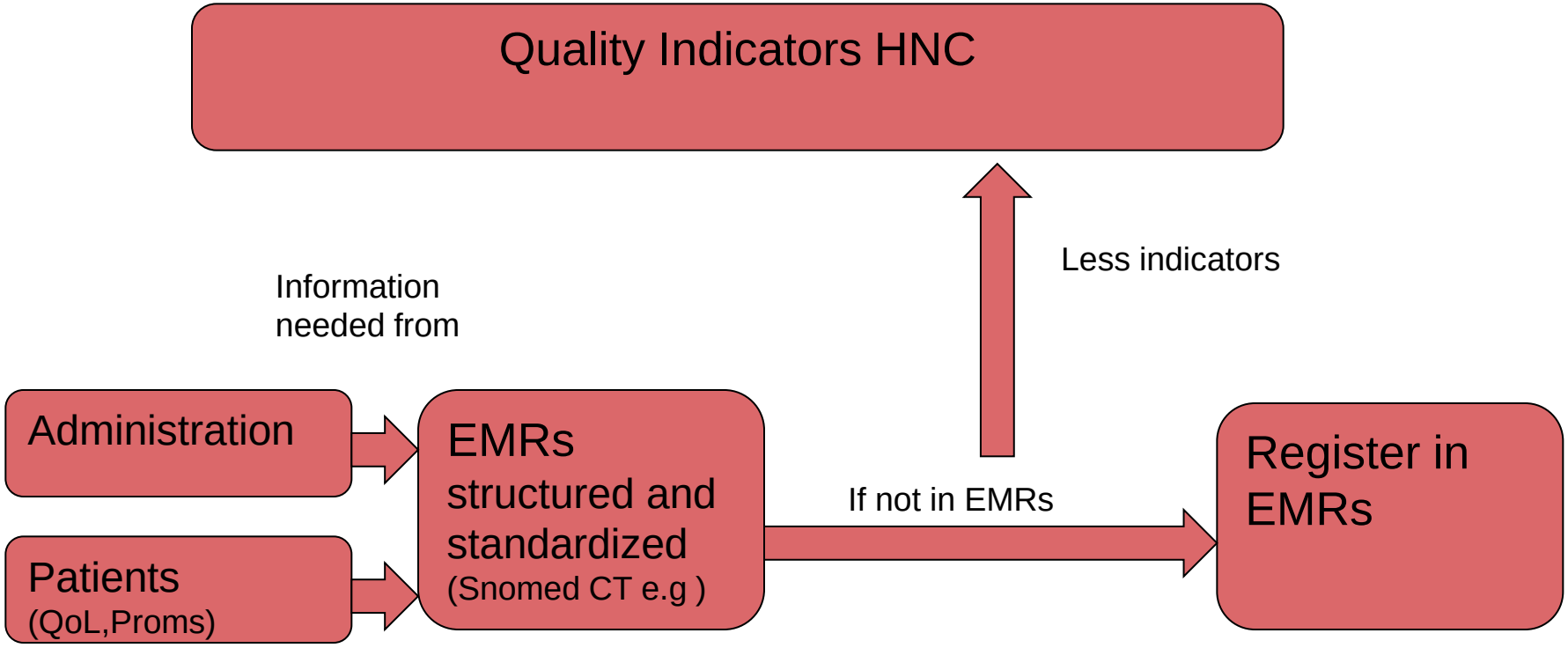

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6. Next steps

- New Clinical Building Blocs will be developed f.e. 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 form EMRs

- Process evaluation of the usefulnes of the building blocs in general

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More information

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