
IT TAKES TWO TO TANGO

The Patient, his/her Doctor and the Reason for Encounter



*"Knowing is not enough; we must apply.
Willing is not enough; we must do."*

*"Saber não é suficiente; devemos aplicar.
Disposto não é suficiente; que devemos fazer. "*

*نحن يجب أن تطبق مع العلم ليست كافية"
"على استعداد ليس كافياً، يجب علينا أن نفعله*

—Goethe

HOLLAND – BRAZIL 2016



OVERVIEW



1. The Patient
2. The General Practitioner
3. Registration
4. The ICPC, Reason for Encounter and “Symptom diagnoses
5. Learning Health System
6. Summary and Conclusions

TAKE AWAY MESSAGES



Get connected with your patient

Use the Bayesian theorem

Start coding with the ICPC

Build your own learning health system

Register “context” information

1. THE PATIENT



MODERN TIMES*

The traditional patient/client (1.0)

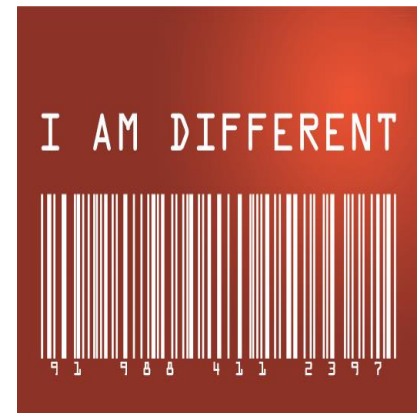
The online or digital patient/client (2.0)

De connected patient/client (3.0)



* *Modern Times* is a 1936 comedy film written and directed by Charlie Chaplin

PEOPLE ARE COMPLEX



BUT WE HAVE ALSO A LOT IN COMMON



**EMPATHY
CONTINUITY OF CARE
SKILLED DOCTOR**

EMPATHY

Good correlation between physician empathy and patient*

Patients in high deprived areas perceived their GPs as less empathic than in affluent areas**

Physicians empathy can be enhanced through specific interventions***

Empathy favour effective consultations****



*F. Derksen et al. Br J Gen Pract 2013; DOI: 10.3399/bjgp13X660814

**Mercer SW et al. Ann Fam Med 2016;14:117-124.

***Batt-Rawden SA. Acad Med. 2013;88(8):1171-77.

**** Di Blasi Z et al. Lancet 2001; 357: 757-62

CONTINUITY OF CARE



Personal relationship between patient and care provider, communication between providers, cooperation between providers*

Relationship continuity is the essence of primary care **

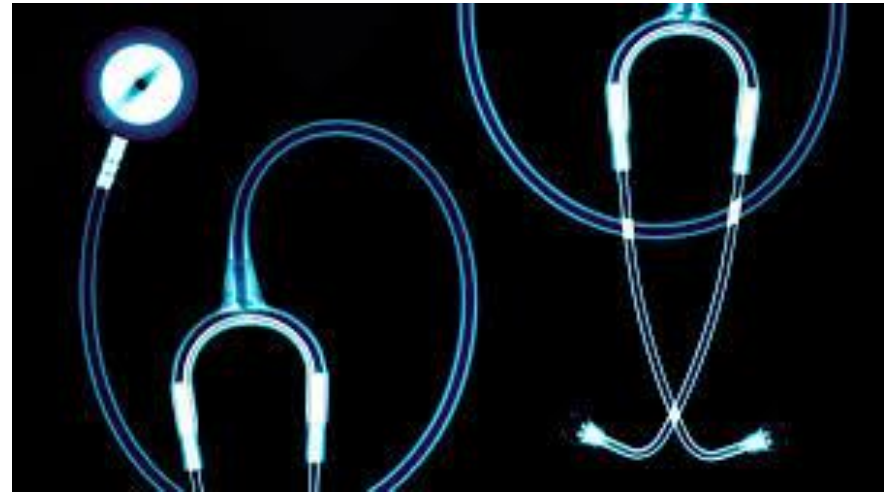
Increased continuity was associated with an overall decrease in overuse***

*Uijen A et al. *Family Practice* (2012) 29 (3): 264-271. doi: 10.1093/fampra/cmr104

**Starfield B. *The Permanente Journal*/ Spring 2011/ Volume 15 No. 2

***Romano MJ et al. *JAMA Intern Med.* 2015;175(7):1148-54. doi: 10.1001/jamainternmed.2015.1340

2. THE GENERAL PRACTITIONER, THE SKILLED DOCTOR



Paracelsus

Thomas Sydenham

Hippocratic oath: "I listen and will inform him well"

BACK TO THE SYMPTOMS

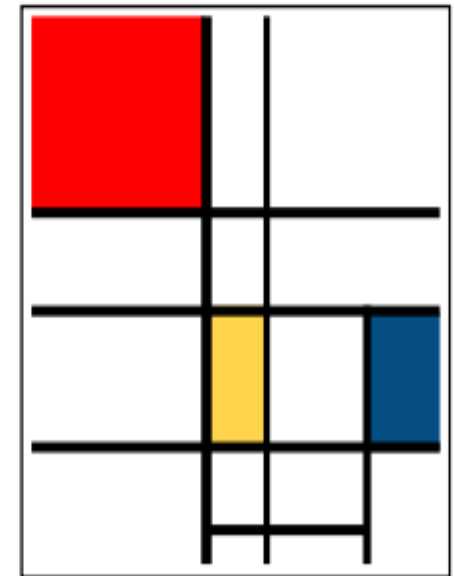
Personalized medicine? Know your Tumor?



THE DIAGNOSTIC PROCESS

The probability approach*

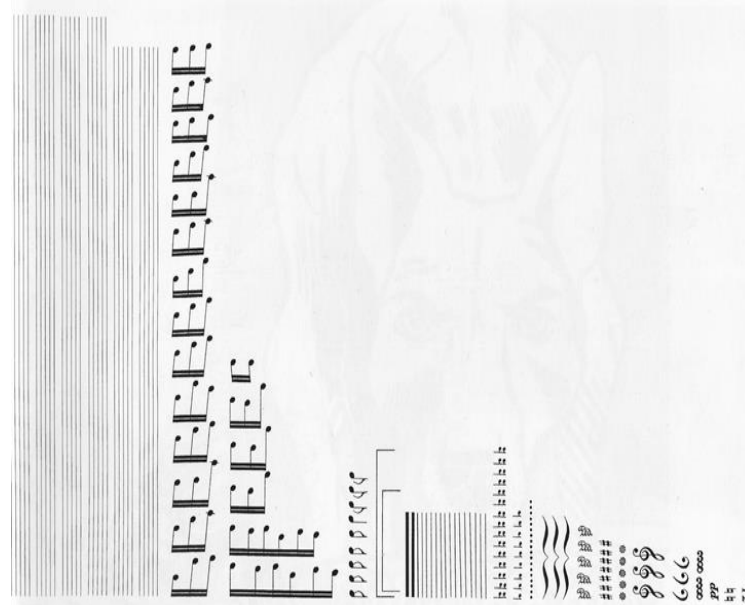
The combinatorial approach**



*Bayes M, Price M. Philosophical Transactions (1683-1775) 1763;**53**:370-418.

**LL Weed, L Weed. BMJ 1999;319:1279 LL Weed. Medical records that guide and teach. NEJM, 1972.

BY ORDERING INFORMATION WE'RE LOSING THE STORY, THE DETAILS BUT GAIN KNOWLEDGE



illness



disease

3. REGISTRATION

The primary purpose of health records is to provide a documented record.

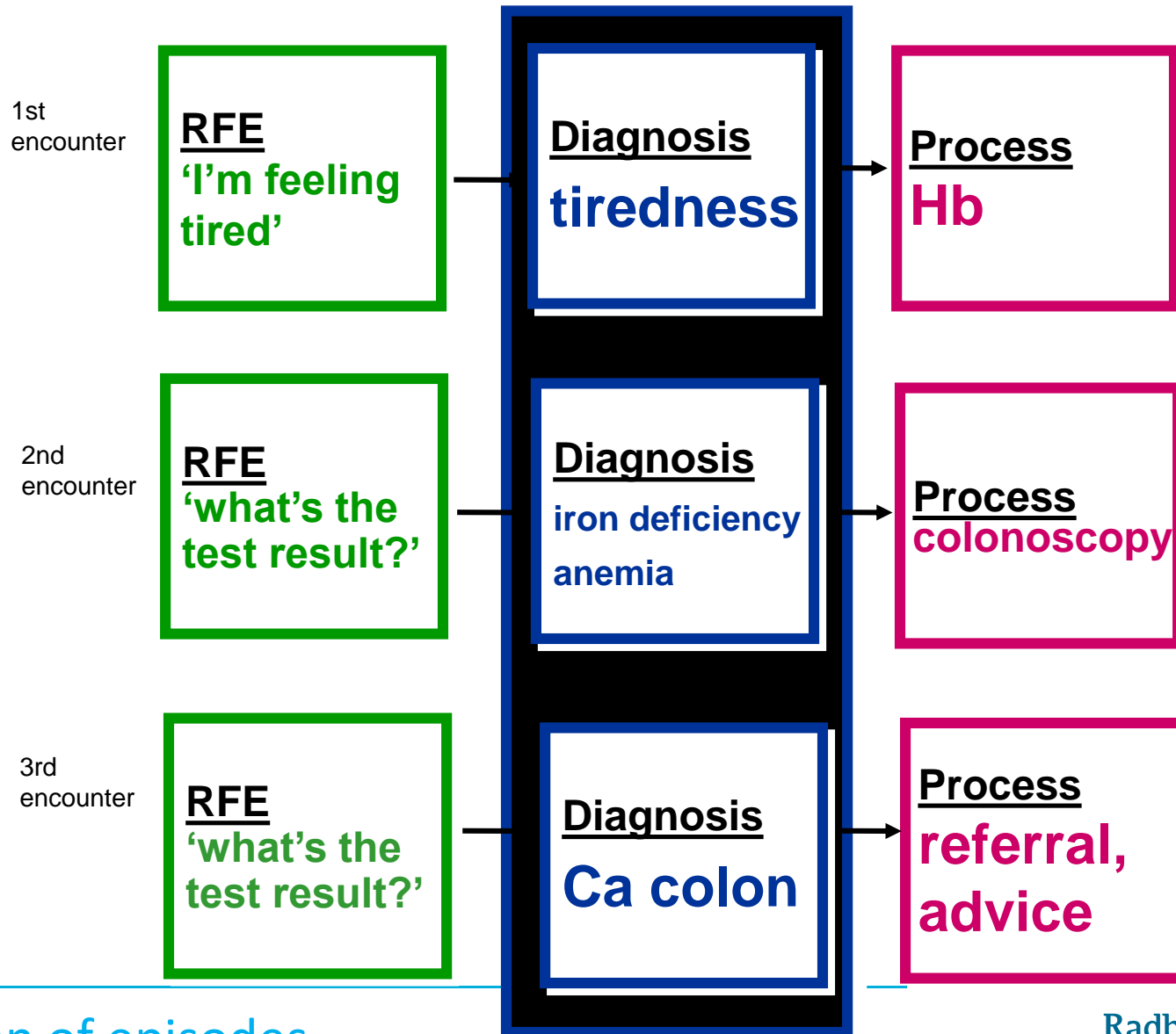
Secondary uses of health records encompass such ones as medico-legal, **quality management, education, research**, public and population health, policy development, health statistics, health service management, case-mix analysis, accreditation, billing/finance/reimbursement.



WHAT INFORMATION

- Reason for Encounter, SOAP and Context data
- Preferences / opinions of patients
- Information of other primary care providers
- Data from patients they collect themselves

4. THE ICPC: EPISODE of CARE, REASON for ENCOUNTER



REASON FOR ENCOUNTER (RFE)

The RFE* is not the same as a symptom or as a complaint. It can also be a request for an intervention or a diagnosis.

It is just what the patient tells you (before starting the history taking or the physical examination) as verbatim as possible.

Patients strongly influence the episode of care

*Hofmans-Okkes IM, Lamberts H. Scand J Prim Health Care Suppl 1993; 2: 42–48.
IM Okkes et al. J Fam Pract 2002; 51: 72.



Wonca International Classification Committee. ICPC-2: Oxford, UK: Oxford University Press, 1998.
Henk Lamberts, Maurice Wood. Oxford University Press, 1987

INTERNATIONAL CLASSIFICATION OF PRIMARY CARE (ICPC)

FaMe-net

Family Medicine network Radboudumc

<http://www.transhis.nl>

<https://demo.orfeus.nl/charts-web>

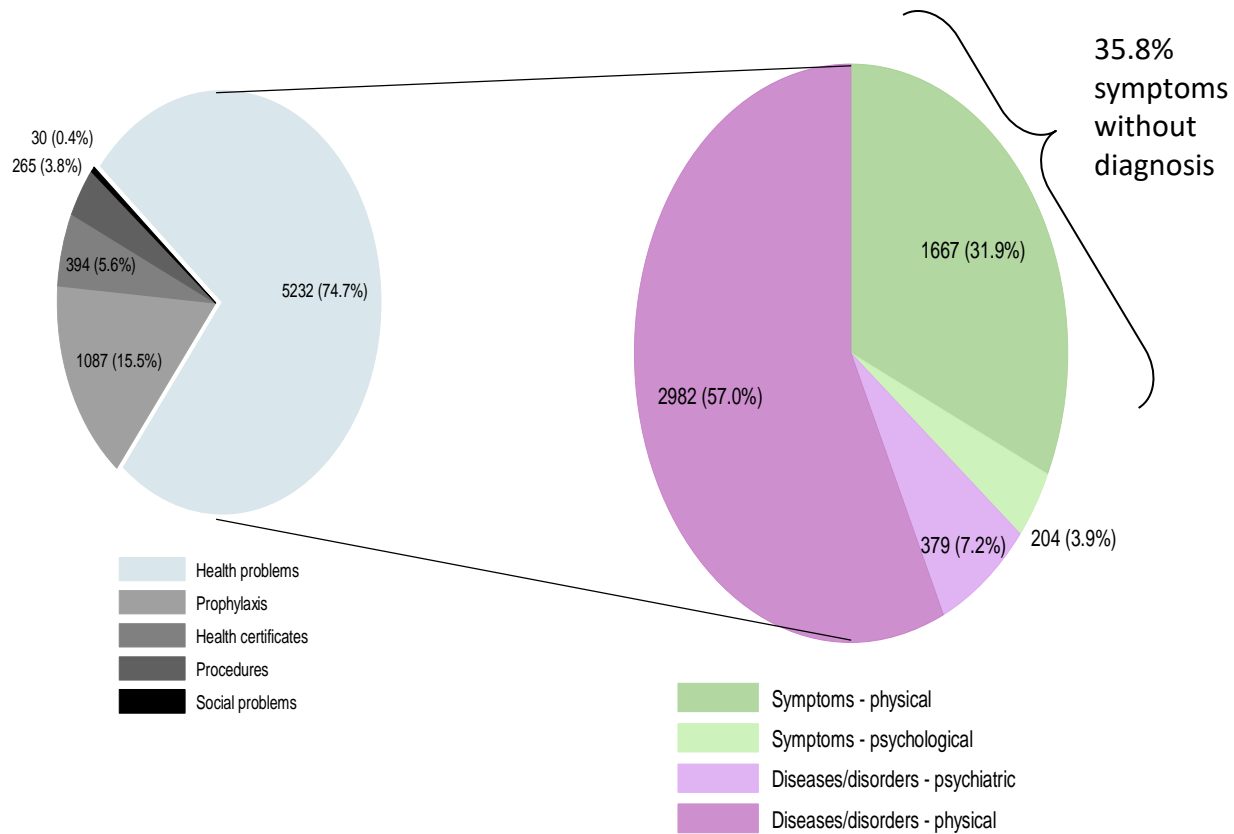
Code	Description	Code	Description	Code	Description
000	General and Unspecified	D	Digestive	K	Cardiovascular
A01	Pain general/multiple sites	D01	Abdominal pain/cranus general	K01	Heart pain
A02	Chafe	D03	Abdominal pain epigastric	K02	Pressure/tightness of heart
A03	Fever	D08	Heartburn	K03	Cardiovascular pain NOS
A04	Weakness/tiredness general	D04	Rectal/anal pain	K04	Palpitations/awareness of heart
A05	Fatigue ill	D06	Perianal itching	K05	Irregular heartbeat other
A06	Fatigue syncope	D09	Abdominal pain localized other	K06	Prominent veins
A07	Coma	D07	Dyspepsia/indigestion	K07	Swollen ankles/oedema
A08	Headache	D08	Flatulence/gas/Beitchung	K08	Risk factor cardiovascular disease
A09	Breathing problem	D09	Nausea	K09	Fear of heart disease
A10	Bleeding haemorrhage NOS	D10	Vomiting	K10	Fear of hypertension
A11	Chest pain NOS	D11	Diarrhoea	K11	Limited function/disability other
A12	Cough/fever/medical treatment	D12	Constipation	K12	Cardiovascular sympt/compit. other
A13	Infectious agent	D13	Ischaemia	K13	Infection of circulatory system
A14	Concern about appearance	D14	Hematemesis/vomiting blood	K14	Rheumatic fever/heart disease
A15	Concern about appearance	D15	Rectal bleeding	K15	Neoplasm cardiovascular
A16	Concern about appearance	D16	Incontinence of bowel	K16	Congenital anomaly cardiovascular
A17	Risk factor for malignancy	D17	Change faeces/bowel movements	K17	Ischaemic heart disease v. angina
A18	Risk factor NOS	D18	Teeth/tongue/slip symptom/complaint	K18	Acute myocardial infarction
A19	Fear of death/dying	D19	Swallowing problem	K19	Ischaemic heart disease w/o angina
A20	Fear of other disease NOS	D20	Abdominal mass NOS	K20	Heart failure
A21	Limited function/disability NOS	D21	Abdominal distension	K21	Atrial fibrillation/flutter
A22	General symptom/complaint other	D22	Fear of cancer of digestive system	K22	Paroxysmal tachycardia
A23	Headache	D23	Fear of digestive disease other	K23	Cardiac arrhythmia NOS
A24	Headache	D24	Limited function/disability (d)	K24	Heart/arterial murmur NOS
A25	Headache	D25	Digestive symptom/complaint other	K25	Pulmonary heart disease
A26	Headache	D26	Gastrointestinal infection	K26	Heart valve disease
A27	Headache	D27	Mumps	K27	Heart disease other
A28	Headache	D28	Viral hepatitis	K28	Elevated blood pressure
A29	Headache	D29	Malignant neoplasm presumed infection	K29	Hypertension uncomplicated
A30	Headache	D30	Malignant neoplasm stomach	K30	Hypertension complicated
A31	Headache	D31	Malignant neoplasm colon/rectum	K31	Postural hypotension
A32	Headache	D32	Malignant neoplasm pancreas		
A33	Headache	D33	Malignant neoplasm digest other NOS		
A34	Headache	D34	Neoplasm divert benign/uncertain		
A35	Headache	D35	Injury digestive system		
A36	Headache	D36	Congenital anomaly digestive system		
A37	Headache	D37	Teeth/gum disease		
A38	Headache	D38	Mouth/lip disease		
A39	Headache	D39	Dentoalveolar disease		
A40	Headache	D40	Duodenal ulcer		
A41	Headache	D41	Septic ulcer other		
A42	Headache	D42	Stomach function disorder		
A43	Headache	D43	Appendicitis		
A44	Headache	D44	Incarcerated hernia		
A45	Headache	D45	Hernia hernia		
A46	Headache	D46	Abdominal hernia other		
A47	Headache	D47	Diverticular disease		
A48	Headache	D48	Intractable bowel syndrome		
A49	Headache				
A50	Headache				
A51	Headache				
A52	Headache				
A53	Headache				
A54	Headache				
A55	Headache				
A56	Headache				
A57	Headache				
A58	Headache				
A59	Headache				
A60	Headache				
A61	Headache				
A62	Headache				
A63	Headache				
A64	Headache				
A65	Headache				
A66	Headache				
A67	Headache				
A68	Headache				
A69	Headache				
A70	Headache				
A71	Headache				
A72	Headache				
A73	Headache				
A74	Headache				
A75	Headache				
A76	Headache				
A77	Headache				
A78	Headache				
A79	Headache				
A80	Headache				
A81	Headache				
A82	Headache				
A83	Headache				
A84	Headache				
A85	Headache				
A86	Headache				
A87	Headache				
A88	Headache				
A89	Headache				
A90	Headache				
A91	Headache				
A92	Headache				
A93	Headache				
A94	Headache				
A95	Headache				
A96	Headache				
A97	Headache				
A98	Headache				
A99	Headache				
A00	Headache				

Soler JK et al. *Fam. Pract.* First published online 17 Jun 2008; oi:10.1093/fampra/cm028

SYMPTOMS AND SYMPTOM DIAGNOSES

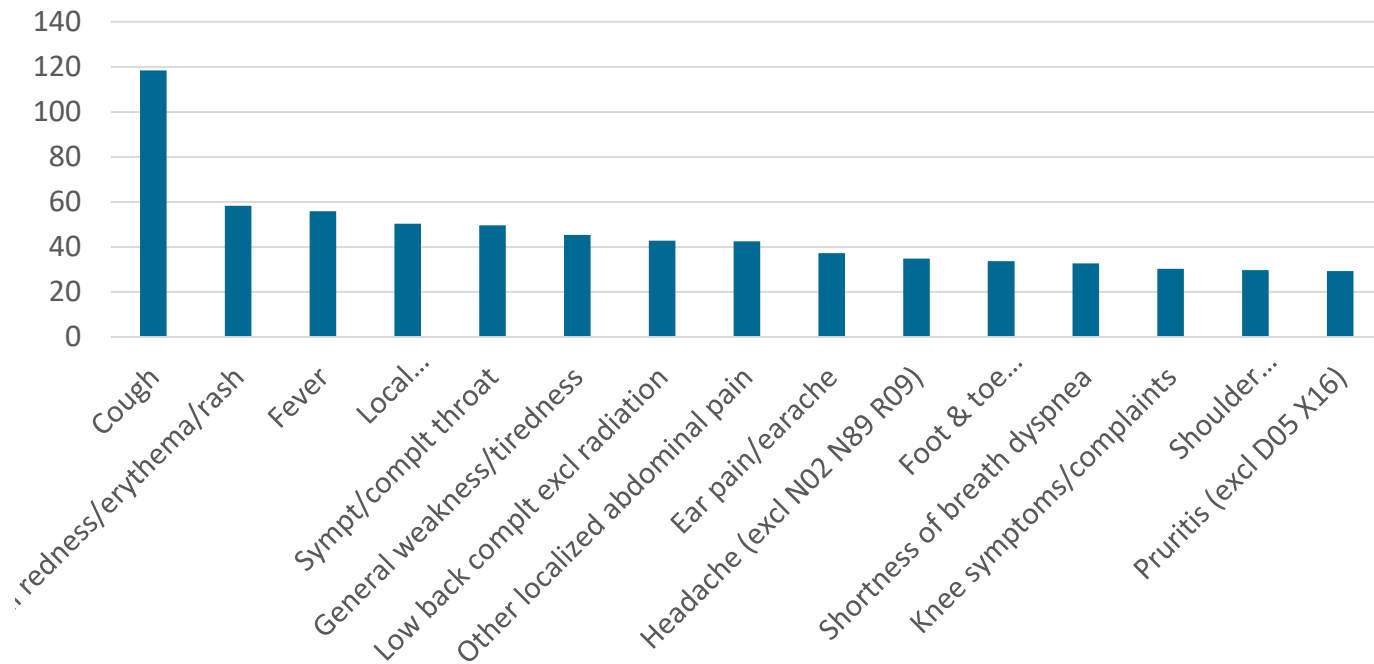
Health problems (n=5232)

Face-to-face contacts (n=7008)

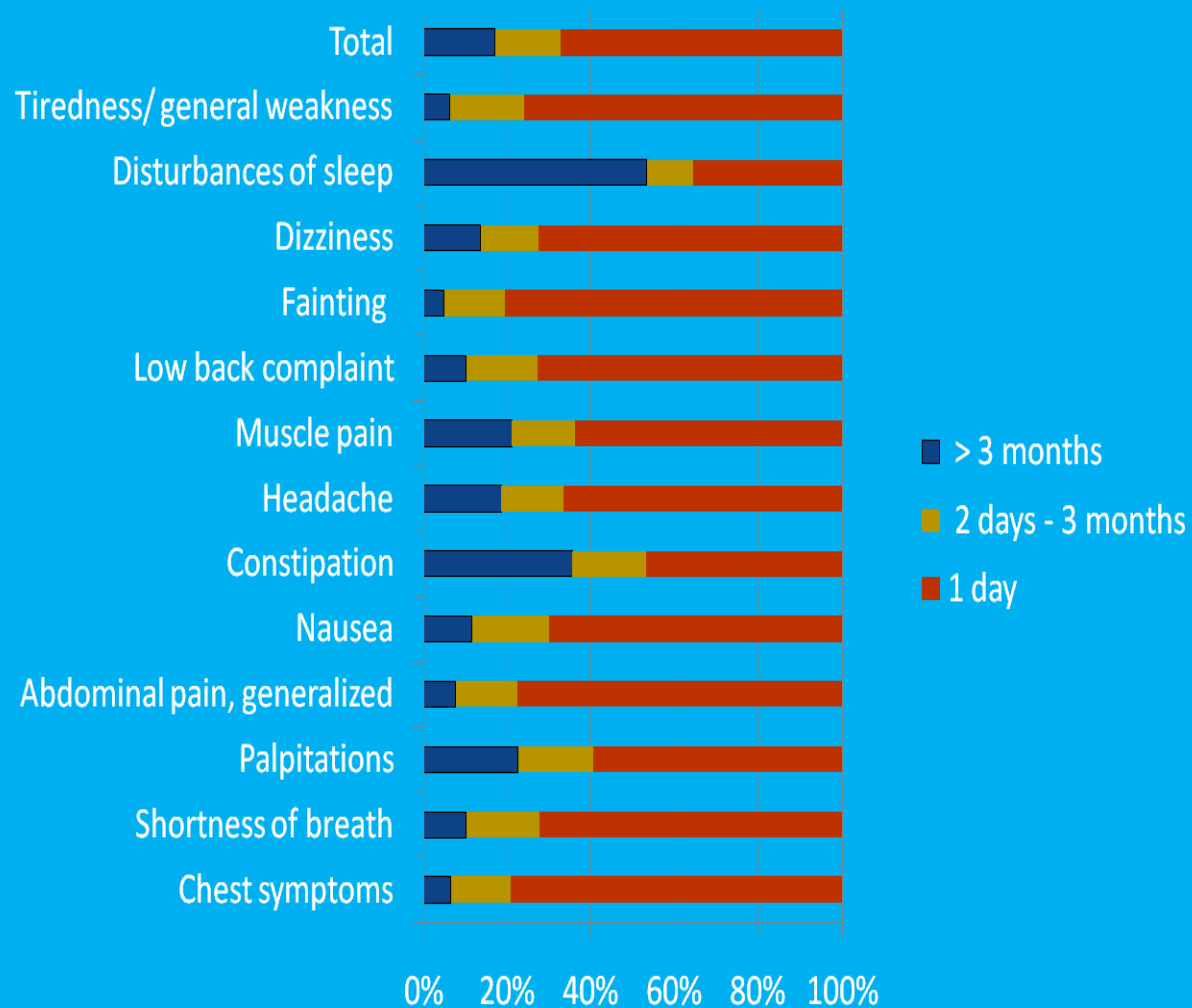


(Rosendal, SJPHC 2015)

REASON FOR ENCOUNTER at the start of an episode per 1000 patients per year



Duration of episodes of symptom diagnoses



CONCLUSIONS ABOUT SYMPTOM DIAGNOSES

- Episodes with physical symptom diagnoses have a short duration
- > 30% of all symptoms do not end up in a disease
- The value of physical symptom diagnoses for diagnosing mental health problems is low in primary care* **
- Call them symptoms diagnoses

*van Boven K. Br J Gen Pract. Jun 2011; 61(587): e316–e325

**Soler JK and Okkes I. Fam. Pract. 2012 29: 272-282



WHY CLASSIFY AND WHY WITH THE ICPC?

- Describes the domain of family practice
- Reflects the way the GPs work and solve problems
- Simple, practical and easy to use
- Easy to exchange with other physicians
- **Makes it possible to build your own learning health system**

COMPLEXITY



Reeve J, et al. BMC Family Practice 2013, 14:112

M McCartney et al. Making evidence based medicine work for individual patients. BMJ 2016;353:i2452.

Freeman AC et al. BMJ 2001;323:1-5

5. LEARNING HEALTH SYSTEM

IMPROVING CLINICAL COMPETENCE BY USING ICPC

Data from FaMe-net (<http://www.transhis.nl/>)
Family Medicine network, Radboud University Medical
Centre, Nijmegen, The Netherlands

<https://demo.orfeus.nl/charts-web>



Okkes IM, et al. ICPC in the Amsterdam Transition Project CD-Rom. Amsterdam: Academic Medical Center/University of Amsterdam, Department of Family Medicine; 2005.
Susan J.M. van Boxtel-Wilms, et al. European Journal of General Practice, DOI:10.3109/13814788.2016.1148135

<https://demo.orfeus.nl/charts-web/#/activate/31343632323136353830343935206b65657376616e626f76656e353340676d61696c2e636f6d/88b0f40299b09a8759caafb026b3cf25a8c28dfe9f848a71ff2f5ffe1d99989>

TransHIS charts - Google Chrome

TransHIS charts x Demo

https://demo.orfeus.nl/charts-web/#/age

Distributions by age Top lists Top reports TransHIS statistical data

About
rens@orfeus.nl

All ICPC-codes

x 1000

Year	Male	Female	Total
0-4	9,355	8,822	18,177
5-9	9,622	8,944	18,566

Find ICPC

Type

- Registration years
- Patients
- Episodes
- Encounters
- RFEs
- Interventions

Encounter types

Occurence in episode

RFE/intervention filter

Settings

https://demo.orfeus.nl/charts-web/#/about

TransHIS charts - Google Chrome

TransHIS charts x

https://demo.orfeus.nl/charts-web/#/age

Distributions by age Top lists Top reports TransHIS statistical data

All ICPC-codes

x 1000

Registration years Patients Episodes Encounters RFEs Interventions

Encounter types Occurrence in episode RFE/intervention filter Settings

Glossary

reason for encounter (RFE)

An agreed statement of the reason(s) why a person enters the health care system, representing the demand for care by that person. The terms written down and later classified by the provider clarify the reason for encounter and consequently the patient's demand for care without interpreting it in the form of a diagnosis.

Year	Male	Female	Total
0-4	9,355	8,822	18,177
5-9	9,632	8,944	18,576

TransHIS charts - Google Chrome

TransHIS charts x Demo

https://demo.orfeus.nl/charts-web/#/age

Distributions by age Top lists Top reports TransHIS statistical data

All ICPC-codes

x 1000 Per 1000 patient years

Find ICPC

Type

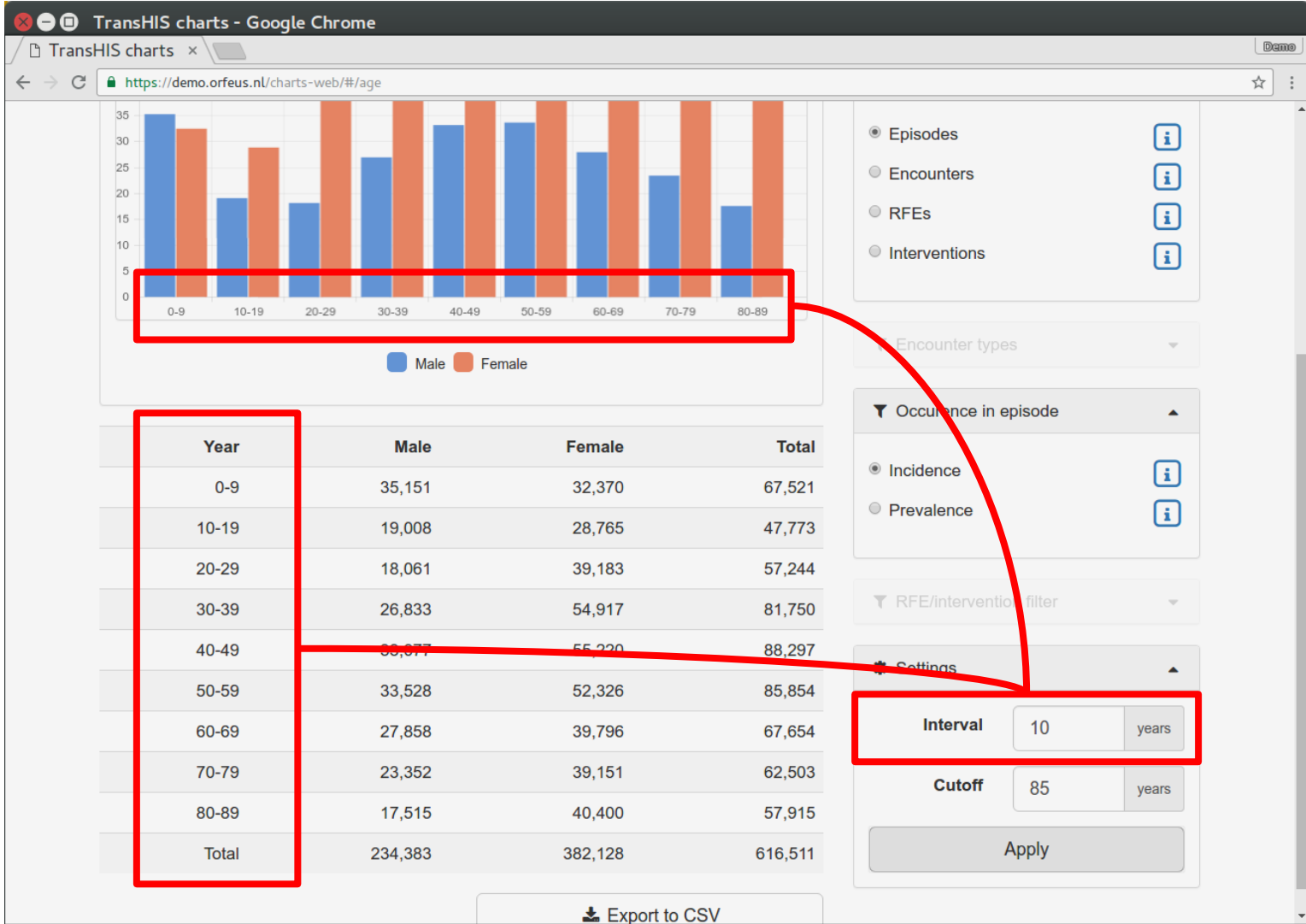
- Registration years
- Patients
- Episodes
- Encounters
- RFEs
- Interventions

Encounter types

Occurrence in episode

- Incidence
- Prevalence

Year	Male	Female	Total
0-4	21,546	19,431	40,977
5-9	13,605	12,939	26,544



TransHIS charts - Google Chrome

TransHIS charts x Demo

https://demo.orfeus.nl/charts-web/#/age

Distributions by age Top lists Top reports TransHIS statistical data

T90 Diabetes mellitus

x 1 Per 1000 patient years

Year	Male	Female	Total
0-9	1	6	7
10-19	3	5	8
20-29	10	12	22
30-39	28	28	56
40-49	80	60	140
50-59	185	90	275
60-69	145	155	300
70-79	120	140	260
80-89	65	120	185

Type

- Registration years
- Patients
- Episodes
- Encounters
- RFEs
- Interventions

Encounter types

Occurrence in episode

- Incidence
- Prevalence

TransHIS charts - Google Chrome

TransHIS charts x

https://demo.orfeus.nl/charts-web/#/age

Distributions by age Top lists Top reports TransHIS statistical data

T90 Diabetes mellitus

x 1 Per 1000 patient years

T90 Diabetes mellitus

Type

- Registration years
- Patients
- Episodes
- Encounters
- RFEs
- Interventions

Encounter types

Occurrence in episode

- Incidence
- Prevalence

Year	Male	Female	Total
0-9	0.1	0.4	0.2
10-19	0.2	0.3	0.2
20-29	0.5	0.6	0.5
30-39	1.5	1.5	1.5
40-49	3.5	2.5	3.0
50-59	9.5	4.5	7.0
60-69	11.5	11.0	11.2
70-79	14.5	12.0	13.2
80-89	13.5	13.5	13.5

TransHIS charts - Google Chrome

TransHIS charts x Demo

https://demo.orfeus.nl/charts-web/#/top-list

Distributions by age Top lists Top reports TransHIS statistical data

Top - Incidence

Code	Title	Count	Per 1000 py
A98	Prevention	28142	101.25
U71	Cystitis/other urin infect NOS	15599	56.12
A97	No disease	14762	53.11
R74	URI (head cold)	13935	50.14
H81	Excessive ear wax	12297	44.24
R05	Cough	11820	42.53
R78	Acute bronchitis/bronchiolitis	10631	38.25
L03	Low back complt excl radiation	10524	37.86
S88	Contact dermatitis/other eczema	8920	32.09
A85	Adv effect med agent proper dose	8641	31.09
S74	Dermatophytosis	8578	30.86
A04	General weakness/tiredness	8417	30.28
L81	Other injury	8068	29.03
R75	Sinusitis acute/chron	7985	28.73
L01	Neck sympt/complt excl headache	6242	22.46

Generate report

- Incidence
- Episodes**
- Incidence
- Prevalence
- Encounters**
- Diagnosis
- RFE (complaint or disease)
- RFE (request for intervention)
- Intervention

Encounter types

Males & females

Age range

0 120

Export to CSV

TransHIS charts - Google Chrome

TransHIS charts x

https://demo.orfeus.nl/charts-web/#/top-list

Distributions by age Top lists Top reports TransHIS statistical data

Top - RFE (complaint or disease)

Code	Title	Count	Per 1000 py
R05	Cough	29447	105.95
S06	Local redness/erythema/rash	15478	55.69
S04	Local swelling/papul/lump/mass	13672	49.19
A03	Fever	13096	47.12
A04	General weakness/tiredness	11756	42.30
D06	Other localized abdominal pain	11121	40.01
L03	Low back complt excl radiation	9947	35.79
H01	Ear pain/earache	9540	34.32
L17	Foot & toe symptoms/complaints	8879	31.95
R02	Shortness of breath dyspnea	8559	30.79
N01	Headache (excl N02 N89 R09)	8511	30.62
L15	Knee symptoms/complaints	8092	29.11
L08	Shoulder symptoms/complaints	7777	27.98
S02	Pruritis (excl D05 X16)	7469	26.87
H02	Hearing complaints (excl H84)	7339	26.40

Generate report

- RFE (complaint or disease)

Chart

Occurrence in episode

Encounter types

- Office encounter
- Housecall
- Telephone consultation
- Repeat prescription
- Administrative

Males & females

Age range

0 120

TransHIS charts - Google Chrome

TransHIS charts x

https://demo.orfeus.nl/charts-web/#/top-list

D06	Other localized abdominal pain	11121	40.01
L03	Low back complt excl radiation	9947	35.79
H01	Ear pain/earache	9540	34.32
L17	Foot & toe symptoms/complaints	8879	31.95
R02	Shortness of breath dyspnea	8559	30.79
N01	Headache (excl N02 N89 R09)	8511	30.62
L15	Knee symptoms/complaints	8092	29.11
L08	Shoulder symptoms/complaints	7777	27.98
S02	Pruritis (excl D05 X16)	7469	26.87
H02	Hearing complaints (excl H84)	7339	26.40
L14	Leg/thigh symptoms/complaints	7301	26.27
L04	Chest symptoms/complaints	6910	24.86
R74	URI (head cold)	6811	24.51
N17	Vertigo/dizziness (excl H82)	6385	22.97
L12	Hand & finger symptoms/complnt	6299	22.66
L01	Neck sympt/complnt excl headache	6227	22.40
U01	Painful urination	5764	20.74
U02	Frequent/urgent urination	5579	20.07
S03	Warts	4888	17.59
D11	Diarrhea	4638	16.69

Encounter types

- Office encounter
- Housecall
- Telephone consultation
- Repeat prescription
- Administrative

Males & females

Age range

0 40 120

Export to CSV

TransHIS charts - Google Chrome

TransHIS charts x

https://demo.orfeus.nl/charts-web/#/top-list

Distributions by age Top lists Top reports TransHIS statistical data

Top - RFE (complaint or disease)

Code	Title	Count	Per 1000 py
R05	Cough	32892	118.34
S06	Local redness/erythema/rash	16185	58.23
A03	Fever	15504	55.78
S04	Local swelling/papul/lump/mass	13971	50.27
A04	General weakness/tiredness	12614	45.38
L03	Low back complt excl radiation	11885	42.76
D06	Other localized abdominal pain	11814	42.51
H01	Ear pain/earache	10324	37.14
N01	Headache (excl N02 N89 R09)	9667	34.78
L17	Foot & toe symptoms/complaints	9353	33.65
R02	Shortness of breath dyspnea	9071	32.64
L15	Knee symptoms/complaints	8427	30.32
L08	Shoulder symptoms/complaints	8243	29.66
S02	Pruritis (excl D05 X16)	8142	29.29
R74	URI (head cold)	7944	28.58

Generate report

- RFE (complaint or disease)

Chart

Occurrence in episode

Encounter types

Males & females

Age range

0 120

Export to CSV

TransHIS charts - Google Chrome

TransHIS charts x

https://demo.orfeus.nl/charts-web/#/top-list

Distributions by age Top lists Top reports TransHIS statistical data

Top - RFE (complaint or disease)

Code	Title	Count	Per 1000 py
R05	Cough	10487	194.24
A03	Fever	8910	165.03
H01	Ear pain/earache	4971	92.07
S06	Local redness/erythema/rash	4423	81.92
R74	URI (head cold)	2418	44.79
S03	Warts	2158	39.97
D10	Vomiting	2079	38.51
S04	Local swelling/papul/lump/mass	2003	37.10
D11	Diarrhea	1986	36.79
A04	General weakness/tiredness	1796	33.27
D06	Other localized abdominal pain	1787	33.10
R02	Shortness of breath dyspnea	1558	28.86
L17	Foot & toe symptoms/complaints	1493	27.65
S18	Laceration/cut	1457	26.99
N01	Headache (excl N02 N89 R09)	1419	26.28

Generate report

- RFE (complaint or disease)

Chart

Occurrence in episode

Encounter types

Males & females

Age range

0 15 120

Export to CSV

TransHIS charts - Google Chrome

TransHIS charts x

https://demo.orfeus.nl/charts-web/#/top-list

Distributions by age Top lists Top reports TransHIS statistical data

Top - RFE (complaint or disease)

Code	Title	Count	Per 1000 py
R05	Cough	5230	160.81
R02	Shortness of breath dyspnea	2840	87.32
S06	Local redness/erythema/rash	2796	85.97
A04	General weakness/tiredness	2600	79.94
L14	Leg/thigh symptoms/complaints	2372	72.93
N17	Vertigo/dizziness (excl H82)	2276	69.98
L03	Low back complt excl radiation	2097	64.48
S04	Local swelling/papul/lump/mass	1968	60.51
D06	Other localized abdominal pain	1874	57.62
U02	Frequent/urgent urination	1795	55.19
A85	Adv effect med agent proper dose	1724	53.01
L17	Foot & toe symptoms/complaints	1710	52.58
S02	Pruritis (excl D05 X16)	1695	52.12
H02	Hearing complaints (excl H84)	1651	50.76
L08	Shoulder symptoms/complaints	1555	47.81

Generate report

- RFE (complaint or disease)

Chart

Occurrence in episode

Encounter types

Males & females

Age range

0 70 120

Export to CSV

TransHIS charts - Google Chrome
TransHIS charts x
https://demo.orfeus.nl/charts-web/#/top-list
Distributions by age Top lists Top reports TransHIS statistical data

Top - RFE (complaint or disease)

Code	Title	Count	Per 1000 py
R05	Cough	14250	99.76
A03	Fever	7404	51.83
S06	Local redness/erythema/rash	6824	47.77
S04	Local swelling/papul/lump/mass	5952	41.67
L03	Low back complt excl radiation	4961	34.73
H01	Ear pain/earache	4364	30.55
A04	General weakness/tiredness	4149	29.05
L15	Knee symptoms/complaints	3878	27.15
L17	Foot & toe symptoms/complaints	3746	26.23
D06	Other localized abdominal pain	3735	26.15
R02	Shortness of breath dyspnea	3668	25.68
H02	Hearing complaints (excl H84)	3625	25.38
L08	Shoulder symptoms/complaints	3461	24.23
N01	Headache (excl N02 N89 R09)	3354	23.48
R74	URI (head cold)	3332	23.33

Generate report
- RFE (complaint or disease)
Chart
Occurrence in episode
Encounter types
Males
Age range
0 120
Export to CSV

TransHIS charts - Google Chrome

TransHIS charts x

https://demo.orfeus.nl/charts-web/#/top-list

Distributions by age Top lists Top reports TransHIS statistical data

Top - RFE (complaint or disease)

Code	Title	Count	Per 1000 py
R05	Cough	18642	137.99
S06	Local redness/erythema/rash	9361	69.29
A04	General weakness/tiredness	8465	62.66
A03	Fever	8100	59.96
D06	Other localized abdominal pain	8079	59.80
S04	Local swelling/papul/lump/mass	8019	59.36
L03	Low back complt excl radiation	6924	51.25
N01	Headache (excl N02 N89 R09)	6313	46.73
H01	Ear pain/earache	5960	44.12
L17	Foot & toe symptoms/complaints	5607	41.50
R02	Shortness of breath dyspnea	5403	39.99
U01	Painful urination	5380	39.82
S02	Pruritis (excl D05 X16)	5104	37.78
N17	Vertigo/dizziness (excl H82)	4824	35.71
L08	Shoulder symptoms/complaints	4782	35.40

Generate report

- RFE (complaint or disease)

Chart

Occurrence in episode

Encounter types

Females

Age range

0 120

Export to CSV

TransHIS charts - Google Chrome

TransHIS charts x

https://demo.orfeus.nl/charts-web/#/top-list

Distributions by age Top lists Top reports TransHIS statistical data

Top - Incidence

Code	Title	Count	Per 1000 py
A98	Prevention	8139	56.98
R74	URI (head cold)	6152	43.07
H81	Excessive ear wax	6024	42.17
A97	No disease	5755	40.29
R78	Acute bronchitis/bronchiolitis	4911	34.38
R05	Cough	4752	33.27
L03	Low back complt excl radiation	4531	31.72
S74	Dermatophytosis	4082	28.58
L81	Other injury	3812	26.69
S88	Contact dermatitis/other eczema	3468	24.28
S18	Laceration/cut	2988	20.92
A85	Adv effect med agent proper dose	2754	19.28
H71	Acute otitis media/myringitis	2729	19.11
S03	Warts	2669	18.69
A04	General weakness/tiredness	2652	18.57

Generate report

- Incidence

Chart

Occurrence in episode

Encounter types

Males

Age range

0 120

Export to CSV

TransHIS charts - Google Chrome
TransHIS charts x Demo
https://demo.orfeus.nl/charts-web/#/top-list

Distributions by age Top lists Top reports TransHIS statistical data

Top - Incidence

Code	Title	Count	Per 1000 py
A98	Prevention	20003	148.06
U71	Cystitis/other urin infect NOS	13599	100.66
A97	No disease	9007	66.67
R74	URI (head cold)	7783	57.61
R05	Cough	7068	52.32
H81	Excessive ear wax	6273	46.43
L03	Low back complt excl radiation	5993	44.36
A85	Adv effect med agent proper dose	5887	43.58
A04	General weakness/tiredness	5765	42.67
R78	Acute bronchitis/bronchiolitis	5720	42.34
S88	Contact dermatitis/other eczema	5452	40.36
R75	Sinusitis acute/chron	5346	39.57
X72	Urogenital candidiasis proven	4825	35.71
S74	Dermatophytosis	4496	33.28
L81	Other injury	4256	31.50

Generate report

- Incidence

Chart

Occurrence in episode

Encounter types

Females

Age range

0 120

Export to CSV

TransHIS charts - Google Chrome

TransHIS charts x

https://demo.orfeus.nl/charts-web/#/top-list

Distributions by age Top lists Top reports TransHIS statistical data

Top - Incidence

Code	Title	Count	Per 1000 py
A98	Prevention	8139	56.98
R74	URI (head cold)	6152	43.07
H81	Excessive ear wax	6024	42.17
A97	No disease	5755	40.29
R78	Acute bronchitis/bronchiolitis	4911	34.38
R05	Cough	4752	33.27
L03	Low back complt excl radiation	4531	31.72
S74	Dermatophytosis	4082	28.58
L81	Other injury	3812	26.69
S88	Contact dermatitis/other eczema	3468	24.28
S18	Laceration/cut	2988	20.92
A85	Adv effect med agent proper dose	2754	19.28
H71	Acute otitis media/myringitis	2729	19.11
S03	Warts	2669	18.69
A04	General weakness/tiredness	2652	18.57

Generate report

- Incidence

Chart

Occurrence in episode

Encounter types

Males

Age range

0 120

Export to CSV

TransHIS charts - Google Chrome

TransHIS charts x

https://demo.orfeus.nl/charts-web/#/top-list

Distributions by age Top lists Top reports TransHIS statistical data

Top - Incidence

Code	Title	Count	Per 1000 py
A98	Prevention	20003	148.06
U71	Cystitis/other urin infect NOS	13599	100.66
A97	No disease	9007	66.67
R74	URI (head cold)	7783	57.61
R05	Cough	7068	52.32
H81	Excessive ear wax	6273	46.43
L03	Low back complt excl radiation	5993	44.36
A85	Adv effect med agent proper dose	5887	43.58
A04	General weakness/tiredness	5765	42.67
R78	Acute bronchitis/bronchiolitis	5720	42.34
S88	Contact dermatitis/other eczema	5452	40.36
R75	Sinusitis acute/chron	5346	39.57
X72	Urogenital candidiasis proven	4825	35.71
S74	Dermatophytosis	4496	33.28
L81	Other injury	4256	31.50

Generate report

- Incidence

Chart

Occurrence in episode

Encounter types

Females

Age range

0 120

Export to CSV

TransHIS charts - Google Chrome

TransHIS charts x

https://demo.orfeus.nl/charts-web/#/top-list

Distributions by age Top lists Top reports TransHIS statistical data

Top - Incidence

Code	Title	Count	Per 1000 py
A98	Prevention	20003	148.06
U71	Cystitis/other urin infect NOS	13599	100.66
A97	No disease	9007	66.67
R74	URI (head cold)	7783	57.61
R05	Cough	7068	52.32
H81	Excessive ear wax	6273	46.43
L03	Low back complt excl radiation	5993	44.36
A85	Adv effect med agent proper dose	5887	43.58
A04	General weakness/tiredness	5765	42.67
R78	Acute bronchitis/bronchiolitis	5720	42.34
S88	Contact dermatitis/other eczema	5452	40.36
R75	Sinusitis acute/chron	5346	39.57
X72	Urogenital candidiasis proven	4825	35.71
S74	Dermatophytosis	4496	33.28
L81	Other injury	4256	31.50

Generate report

- Incidence

Chart

Occurrence in episode

Encounter types

Females

Age range

0 120

Export to CSV

TransHIS charts - Google Chrome

TransHIS charts x

https://demo.orfeus.nl/charts-web/#/top-report

Distributions by age Top lists Top reports TransHIS statistical data

Top reports

Please choose ICPC code →

Type ICPC code 🔍

Select report

Apply ICPC-filter on

- Episode
- RFEs

and count

Chart

At start of episode

Males & females

Age range

0 120

Export to CSV

The screenshot shows the 'Top reports' section of the TransHIS charts web application. The interface includes a search bar for ICPC codes, a 'Select report' dropdown menu, and a 'Chart' section with various filters. Red boxes highlight the 'Episode' and 'RFEs' options in the 'Select report' menu, and the 'RFEs' and 'Interventions' options in the 'Please choose ICPC code' dropdown. Red lines connect these highlighted options to the corresponding dropdown menus in the 'Select report' section.

TransHIS charts - Google Chrome

TransHIS charts x

https://demo.orfeus.nl/charts-web/#/top-report

Distributions by age Top lists Top reports TransHIS statistical data

Episodes with RFE (start) "X19 Lump/mass breast"

Code	Title	Count	Per 1000 py
X19	Lump/mass breast	242	4.41
X76	Malignant neoplasm breast	68	1.24
X88	Chronic cystic dis breast	48	0.87
X18	Breast pain	9	0.16
X79	Benign neopl breast (excl X88)	9	0.16
S93	Sebaceous cyst	8	0.15
L04	Chest symptoms/complaints	5	0.09
X21	Other sympt/compl breast	4	0.07
X99	Other diseases fem genital syste	4	0.07
A97	No disease	3	0.05
S78	Lipoma	3	0.05
W94	Mastitis puerperalis	3	0.05
X26	Fear of breast cancer	2	0.04
Total		425	7.74

X19 Lump/mass breast

Select report

Apply ICPC-filter on RFE and count Episodes

Chart

At start of episode

Females

Age range 0 45 120

Export to CSV

TransHIS charts - Google Chrome

TransHIS charts x

https://demo.orfeus.nl/charts-web/#/top-report

Distributions by age Top lists Top reports TransHIS statistical data

Episodes with RFE (start) "X19 Lump/mass breast"

Code	Title	Count	Per 1000 py
X19	Lump/mass breast	337	8.37
X88	Chronic cystic dis breast	66	1.64
A97	No disease	19	0.47
X76	Malignant neoplasm breast	15	0.37
X79	Benign neopl breast (excl X88)	15	0.37
X18	Breast pain	10	0.25
S93	Sebaceous cyst	7	0.17
X21	Other sympt/compl breast	5	0.12
S04	Local swelling/papul/lump/mass	5	0.12
L04	Chest symptoms/complaints	4	0.10
S80	Other/unspec neoplasm skin	4	0.10
X99	Other diseases fem genital syste	3	0.07
W95	Other disorders of breast	2	0.05
A87	Complicat sura/med treatment	2	0.05
Total		510	12.66

X19 Lump/mass breast x

Select report

Apply ICPC-filter on
RFE

and count
Episodes

Chart

At start of episode

Females

Age range
0 25 45 120

Export to CSV

PREDICTIVE VALUE OF RFE AS START OF A CANCER EPISODE (AGE >44)

Reason for encounter	Predictive value for cancer
Lump female breast	15
Postmenopausal bleeding	4
Rectal bleeding	3
Hematuria	2
Nipple symptoms (women)	2
Weight loss	2
Swallowing problems	2
Changes in bowel movements	2
Lump/swelling skin	2
Weakness	< 1
Shortness of breath / dyspnoea	< 1
Cough	< 1

Kees van Boven, Annemarie A. Uijen, Nina van de Wiel, Sibó K. Oskam, Henk J. Schers, Willem J.J. Assendelft Clinical relevance of alarm symptoms as reason for encounter for diagnosing cancer in primary care. (submitted)

NIGERIA, LAGOS

RfE N01 (Headache)	Freq	Percent Within RfE Group
A73 – Malaria	42	39.3
K86 - Hypertension uncomplicated	12	11.2
R74 – Upper Respiratory Infections (URI)	5	4.7
F91 – Refractive error	3	2.8
F70 – Conjunctivitis	2	1.9
Others	43	40.2
	107	100

Olagundoye OA, van Boven K, van Weel C. International Classification of Primary Care-2 coding of primary care data at the general out-patients' clinic of General Hospital, Lagos, Nigeria. *Family Med Prim Care* 2016;5:291-7.

POSTERIOR PROBABILITY*

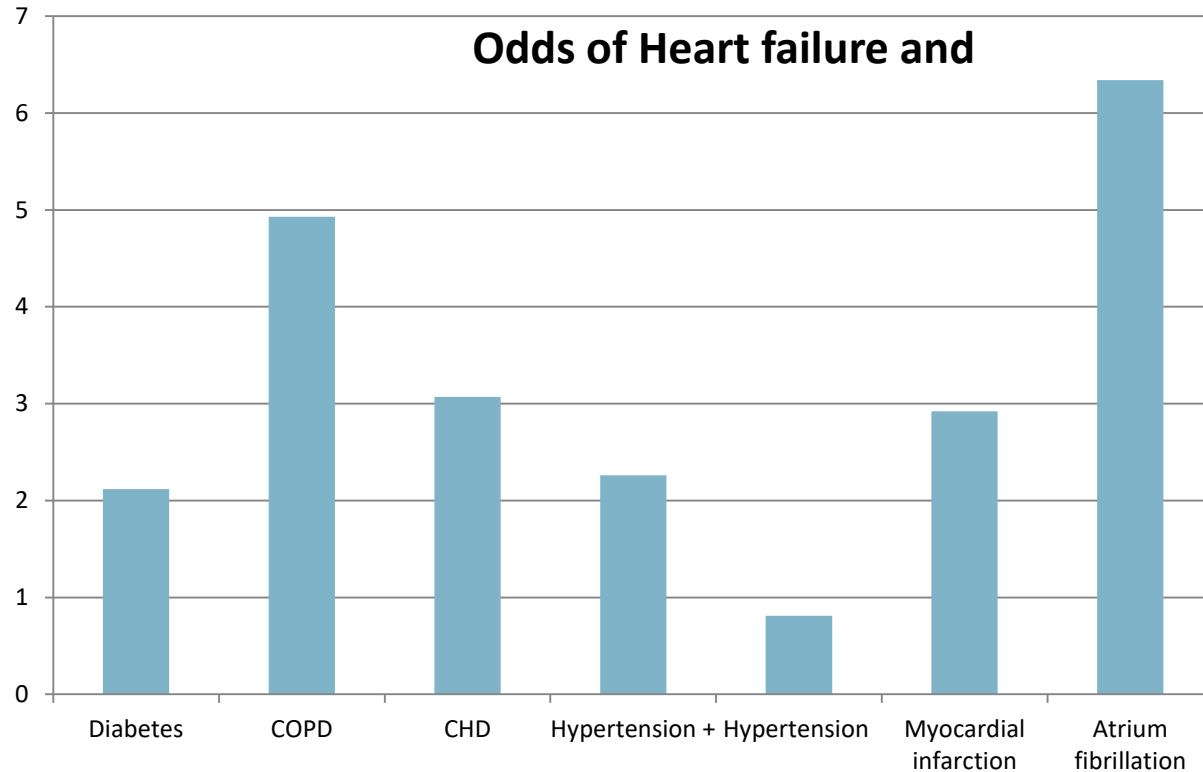
*Download the top 100 at <http://www.transhis.nl/>

This provides insight into the clinical significance of the simultaneous occurrence of two events (symptom and a diagnoses, or two diseases = comorbidity) in general practice.

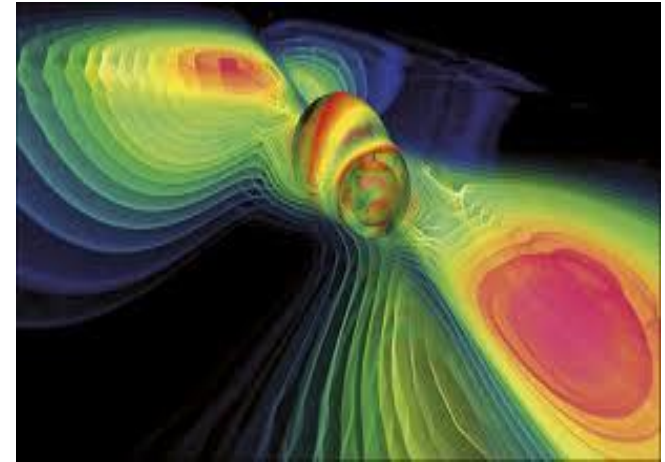
Leusink P, Kaptheijns A, Laan E, van Boven K and Lagro-Janssen A. Comorbidities Among Women With Vulvovaginal Complaints in Family Practice. *J Sex Med* 2016;13:220e225.

Ramon-Roquin A, Pecquenard F, Schers H, Van Weel C, Oskam S, Van Boven K. Psychosocial, musculoskeletal and somatoform comorbidity in patients with chronic low back pain: original results from the Dutch Transition Project. *Fam.Practice* 2015 Jun;32(3):297-304. doi: 10.1093/fampra/cmz027

EXAMPLES OF RELATIONS BETWEEN TWO DIAGNOSES USING THE ODDS (>= 65 YEAR)



WHAT WILL BE POSSIBLE WITH ICPC-3?



- New defined content in a standardized format
- Linkages to ICD-10, ICD-11, ICF and SNOMED-CT for interoperability – continuity of data
- Country-specific extensions/classes
- One source-file for different purposes – book, electronic, for Electronic Records, etcetera

A PROPOSAL FOR THE REGISTRATION OF SOCIO-DEMOGRAPHIC AND PERSONAL FACTORS

General personal data	Social context	Life events
Age	Education	Death of a partner
Gender	Occupation	Death of a child
Country of birth	Occupational status	Death of a loved one
E-mail address	Partnership and marriage	Pregnancy / birth of child
		Divorce
Lifestyle factors	Family history	Abuse in relation
Smoking	Breast cancer, ovary cancer, colorectal cancer, melanoma, prostate cancer, diabetes, cardiovascular disease	Abuse outside of relation
Use of alcohol		Rape in relation
Use of drugs		Rape outside of relation

CHANGES IN BURDEN OF DISEASE IN DALYS*

TOP TEN 2004 AND 2030

2004 Disease or injury	As % of total DALYs	Rank		Rank	As % of total DALYs	2030 Disease or injury
Lower respiratory infections	6.2	1	→	1	6.2	Unipolar depressive disorders
Diarrhoeal diseases	4.8	2	→	2	5.5	Ischaemic heart disease
Unipolar depressive disorders	4.3	3	→	3	4.9	Road traffic accidents
Ischaemic heart disease	4.1	4	→	4	4.3	Cerebrovascular disease
HIV/AIDS	3.8	5	→	5	3.8	COPD
Cerebrovascular disease	3.1	6	→	6	3.2	Lower respiratory infections
Prematurity and low birth weight	2.9	7	→	7	2.9	Hearing loss, adult onset
Birth asphyxia and birth trauma	2.7	8	→	8	2.7	Refractive errors
Road traffic accidents	2.7	9	→	9	2.5	HIV/AIDS
Neonatal infections and other ^a	2.7	10	→	10	2.3	Diabetes mellitus
COPD	2.0	13	→	11	1.9	Neonatal infections and other ^a
Refractive errors	1.8	14	→	12	1.9	Prematurity and low birth weight
Hearing loss, adult onset	1.8	15	→	15	1.9	Birth asphyxia and birth trauma
Diabetes mellitus	1.3	19	→	18	1.6	Diarrhoeal diseases

DALYs for a disease or health condition are calculated as the sum of the Years of Life Lost (YLL) due to premature mortality in the population and the Years Lost due to Disability (YLD) for people living with the health condition or its consequences

Limitations of the Risk to Health Approach

Underlying factor	Risk factor	Disease
Poverty Gender issues Climate Health system	Underweight Unsafe sex Unsafe water, sanitation & hygiene Indoor smoke from solid fuels Zinc deficiency Iron deficiency Vitamin A deficiency Blood pressure Tobacco Cholesterol	HIV/AIDS Lower respiratory infections Diarrhoeal diseases Childhood cluster diseases Low birth weight Malaria Unipolar depr. disorders Ischaemic heart disease Tuberculosis Road traffic injury

6. SUMMARY AND CONCLUSIONS

The Patient, his/her doctor and the reason for encounter



1. empathy and continuity of care, a skilled doctor
2. importance of the reason for encounter
3. use symptom diagnoses registered with ICPC.
4. integrate practice based knowledge. with information about personal factors and functioning.
5. focus on the capabilities of the patient.

*“Knowing is not enough; we must apply.
Willing is not enough; we must do.”*

ACKNOWLEDGEMENT

- From Amsterdam: Henk Lamberts, Inge Okkes, Henk Becker, Pieter Dijksterhuis and Jean Karl Soler
- Colleagues from Nijmegen: Henk Schers, Wil van der Bosch, Chris van Weel, Huib ten Napel, Annemarie Uijen, Tim Olde Hartman, Peter Lucassen, Simone Postma and Pim Assendelft.
- Colleagues in the classification committee chaired by Thomas Kühlein
- The patients, assistants, nurse practitioners and GP's from the Family Medicine Network Nijmegen (before the Transition Project and Continuous Morbidity Registration Project Nijmegen)
- Sibö Oskam, who developed the software and his colleagues from Orfeus, a company focussed on the connection between health science, decision science and information science.
- And last but not least Gustavo Gusso and the Brazilian colleagues for organizing this wonderful conference.