EUSEM PRAGUE 2019
12-16 OCTOBER
THE EUROPEAN EMERGENCY MEDICINE CONGRESS

Pan-European Emergency Medicine Database Project

EUSEM Research Committee

Kelly Janssens, Ireland

Research

CURRENT PROJECTS AND WORKING GROUPS

- **Pan-European Emergency Medicine Database**

This project is exploring the feasibility of developing a Pan-European database of emergency department presentations. Such a database would establish evidence-based commonalities and differences in presentation patterns and clinical trajectories internationally. This epidemiology would lend itself to improved collaboration in many areas including treatment guidelines.

In order for such a project to generate meaningful data two key features must be addressed:

1. Understanding emergency medicine management in each country: how European ED's function and are staffed, how they receive and register patients digitally as well as how patients are assessed clinically will ensure any anonymous data extracted is comparable.
2. Establishing commonalities in how patient complaints are recorded: Emergency medicine is quite unlike other specialties in that the patients complaint rather than a specific diagnosis dictates why, when and where consultations happen. As such, establishing a person-centered language of complaints will be key to subsequent clinical accuracy.

To this end, we have been processing data from 13 countries to establish qualitative parameters with a view to doubling this by end 2019 and collecting initial quantitative sample data in early 2020.

Research

CURRENT PROJECTS AND WORKING GROUPS

- **Pan-European Emergency Medicine Database**

Accident & Emergency Informatics (A&EI)

Welcome

Accident & Emergency Informatics (A&EI) is a novel discipline in medical informatics, aiming at integrating data recorded at the accident sites with health records of subjects being involved in such accidents for better support and

EFMI-EUSEM Task Force

Welcome

The European Federation for Medical Informatics (**EFMI**) and the European Society for Emergency Medicine (**EUSEM**) have established a Joint Task Force.

EUSEM and EFMI plan to create recommendations and education tools for the application of information technologies in Emergency Medicine Systems. The starting point will be a minimum data set for emergency departments. Joint work will address IT tools and standards and will focus on the definition and format for capturing the Chief Complaint in Emergency departments. Part of the collaborative effort is a feasibility study that will engage EDs, EMSs, and industry throughout Europe as well as educational material that will enrich current curricula and is expected to drive implementation of the recommendations.

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HEALTH

General Practice

Specialist Care

Emergency medicine

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Emergency Medicine professionals navigate the unpredictable waters of unscheduled care.

Can Emergency medicine professionals show leadership in the increasingly rough waters of rights-based medicine?

- What know now
  - Who is doing what

- What have we to gain from comparison/collabortion

- What are opportunities and boundaries to comparison/collaboration
  - EFMI
  - Existing databases Germany, Netherlands

- Potential Implications for EUSEM as a society
  - Clinical standards, education standards, development of the speciatly

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- Potential Implications for EUSEM as a society
  - Clinical standards, education standards, development of the speciatly

EUSEM Pan-European Emergency Department database feasibility project

Current engagement:
- 33 + countries
- some multiples

Site vists conducted:
10 +

Process:

120 items in survey

+ follow up with individual countries
(what we know we dont know)

+ site visits
(what we don't know we don't know)

+iterations
(what we thought we knew but didn't)

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Process:
120 items in survey

+ follow up with individual countries
(what we know we dont know)

+ site visits
(what we don't know we don't know)

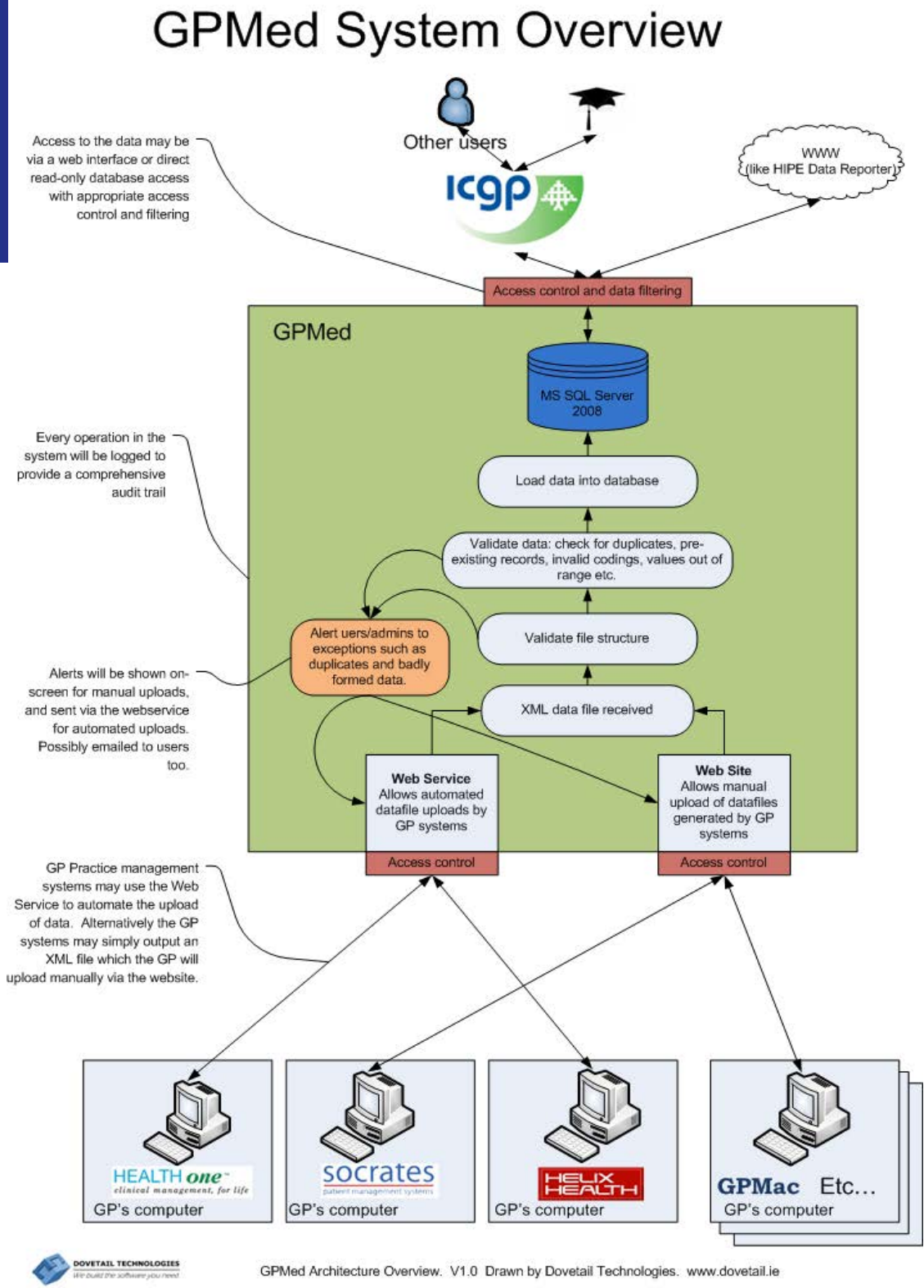
+iterations
(what we thought we knew but didn't)

+ sharing of minimum data

+ sharing of minimum datasets

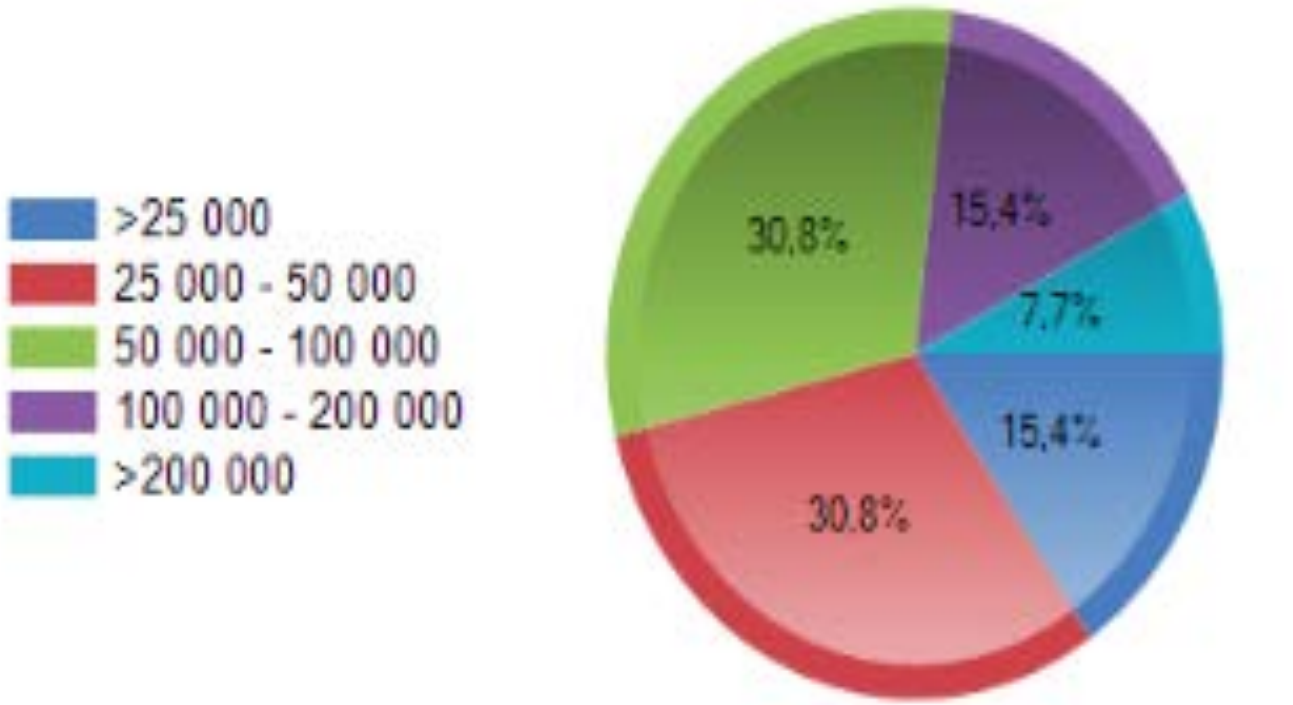
Now gaining valuable information necessary to build for each country a potential

ETL(Extract Load Transform)

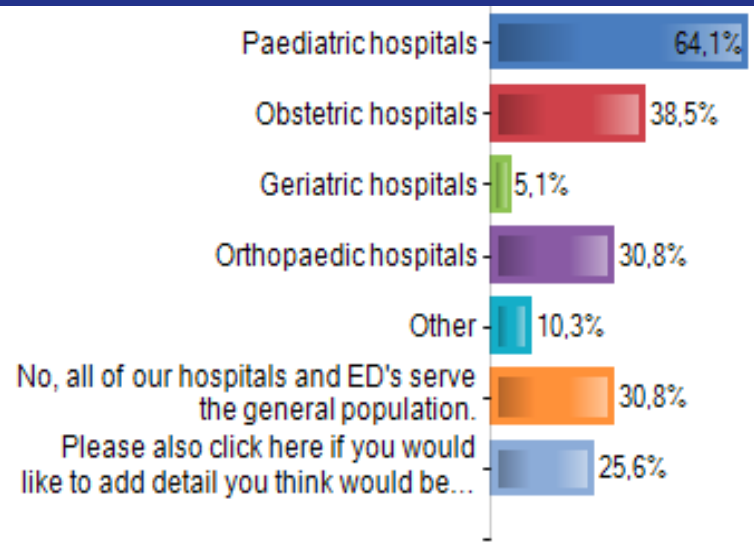


What size of ED are they coming to?

(visits / year)



What services are offered?



28. In your region/country are bypass protocols in place where an ambulance might not take a patient to the nearest ED depending on their condition? (please click ALL answers that apply).

	Frequencies	% Resp.
No. Ambulances will always go to the nearest ED.	7	17,9%
We have bypass protocol for some conditions/ patient types.	28	71,8%
There is a bypass protocol for Trauma	23	59%
There is a bypass protocol for ST elevation myocardial infarction (STEMI).	30	76,9%
There is a bypass protocol for (FAST +) or thrombolysable stroke.	22	56,4%
Ambulances with children bypass closer adult hospitals to get to paediatric hospitals.	15	38,5%
Ambulances with women in labour bypass closer hospitals to get to obstetric hospitals.	20	51,3%
Other bypass protocols not listed here (please add).	2	5,1%
Please also click here if you would like to add detail you think would be helpful	3	7,7%
Total	39	

Effective responses : 39
Response rate : 90,7%

Non-response(s) : 4
The most quoted modalities : There is a bypass protocol for ST elevation myocardial infarction (STEMI).; We have bypass protocol for some conditions/ patient types.; There is a bypass protocol for Trauma

Who pays for visits to the ED?

18. In your hospital, when patients present to the Emergency Department, do they have to pay for their care?

	Frequencies	% Resp.
NO - the government pays for all patients to come to the ED, patients are never charged a fee.	20	51,3%
YES - all patients are charged a standard fee.	3	7,7%
YES - all patients are charged a standard fee and also extra fees for investigations and treatments.	4	10,3%
SOME - all patients are charged a fee, but some patients have this fee covered by the government, for example if they are within a certain income or age category.	9	23,1%
SOME - all patients are charged a fee, but some patients would have private health insurance that would cover this fee	5	12,8%
Please **ALSO** click here to add comments you think might be helpful....	11	28,2%
Total	**39**	

Effective responses : 39
Response rate : 90,7%

Non-response(s) : 4
The most quoted modalities : NO - the government pays for all patients to come to the ED, patients are never charged a fee.; Please ALSO click here to add comments you think might be helpful....; SOME - all patients are charged a fee, but some patients have this fee covered by the government, for example if they are within a certain income or age category.

Understanding variation to avoid selection bias

Confounding factors...

	Not really a problem for us.		Small problems.		Moderate problems.		Big problems.		This is a crisis in our region.		Total	
	Freq.	% Resp.	Freq.	% Resp.	Freq.	% Resp.	Freq.	% Resp.	Freq.	% Resp.	Freq.	% Resp.
Overcrowding in the ED	0	0%	4	10,3%	12	30,8%	17	43,6%	6	15,4%	**39**	**100%**
Waiting times in the ED	0	0%	7	18,9%	17	45,9%	11	29,7%	2	5,4%	**37**	**100%**
Problems with patients who are finished...	1	2,7%	6	16,2%	11	29,7%	15	40,5%	4	10,8%	**37**	**100%**
Recruiting and retaining doctors	5	12,8%	5	12,8%	12	30,8%	11	28,2%	6	15,4%	**39**	**100%**
Recruiting and retaining nurses	4	10,8%	6	16,2%	12	32,4%	11	29,7%	4	10,8%	**37**	**100%**
Resources and funding to the ED	1	2,6%	11	28,9%	7	18,4%	16	42,1%	3	7,9%	**38**	**100%**
Physician burnout	3	7,7%	10	25,6%	10	25,6%	9	23,1%	7	17,9%	**39**	**100%**
Non-physician staff- burnout	2	5,4%	12	32,4%	13	35,1%	6	16,2%	4	10,8%	**37**	**100%**
Volume of patients who would be better ...	3	7,9%	7	18,4%	6	15,8%	18	47,4%	4	10,5%	**38**	**100%**
Gender balance among ED doctors	17	44,7%	13	34,2%	6	15,8%	2	5,3%	0	0%	**38**	**100%**
Gender balance among ED nurses	14	36,8%	13	34,2%	8	21,1%	2	5,3%	1	2,6%	**38**	**100%**
Adequate provision for doctors who are ...	9	23,7%	10	26,3%	9	23,7%	10	26,3%	0	0%	**38**	**100%**
Adequate provison for nurses who are pa...	8	21,1%	11	28,9%	10	26,3%	9	23,7%	0	0%	**38**	**100%**
Total	**67**	**13,6%**	**115**	**23,3%**	**133**	**27%**	**137**	**27,8%**	**41**	**8,3%**	**493**	**100%**

Understanding variation to avoid selection bias

The good news....

Extent of ED digitisation:

62. Does your ED use a computer system for any of the following tasks:

	Frequencies	% Resp.
Not at all, we operate an entirely paper based system	3	7,7%
Registering patients by clerical staff	22	56,4%
Triaging patients by nurses	18	46,2%
Assessing and treating patients by doctors	20	51,3%
All levels - we operate an entirely paperless system.	17	43,6%
Please ALSO click here to add any additional comments that you think might be helpful.	6	15,4%
Total	**39**	

Effective responses : 39
Response rate : 90,7%

Non-response(s) : 4
The most quoted modalities : Registering patients by clerical staff; Assessing and treating patients by doctors; Triaging patients by nurses

The good news....

Extent of ED digitisation:

64. Is the IT system in use developed locally for your ED only or is it an externally developed system that in?

	Frequencies	% Resp.
Locally developed system	17	43,6%
Externally developed system	23	59%
Please ALSO click here to add any detail you think would be helpful (including if possible the name of your system)	4	10,3%
Total	**39**	

Effective responses : 39
Response rate : 90,7%

Non-response(s) : 4
The most quoted modality : Externally developed system

The good news....

Extent of ED digitisation:

79. At triage to nurses digitally record any of the following:

	Frequencies	% Resp.
Triage Category	30	88,2%
Blood pressure	28	82,4%
Temperature	28	82,4%
Heart Rate	28	82,4%
Oxygen saturations	27	79,4%
Respiratory rate	24	70,6%
Early warning score	7	20,6%
Please ALSO click here to add any other paparmeters or add detail that might be helpful.	9	26,5%
Total	34	

Effective responses : 34 Non-response(s) : 9
Response rate : 79,1% The most quoted modalities : Triage Category; Blood pressure; Temperature; ...

81. To your knowledge, would it be possible to extract data from this (clinical parameters at triage) field ?

	Frequencies	% Resp.
No	2	5,1%
Yes but only manually	16	41%
Yes, in automatically generated reports	18	46,2%
I do not know	6	15,4%
Please add detail if you think this would be helpful....	0	0%
Total	39	

Effective responses : 39 Non-response(s) : 4
Response rate : 90,7% The most quoted modalities : Yes, in automatically generated reports; Yes but only manually; I do not know

The good news....

Extent of ED digitisation:

101. Does your digital system record any of the following:

	Frequencies	% Resp.
Time and date patient registered	39	100%
Time of nursing triage	28	71,8%
Time emergency doctor begins their assessment	29	74,4%
Time emergency doctor completes their assessment	21	53,8%
Time (where necessary) patient is referred to another specialty or for admission	22	56,4%
Time (where necessary) patient is seen by another specialty or admitted	14	35,9%
Time of discharge	34	87,2%
Outcome of discharge (i.e. referred for admission, home with outpatient follow up, refer back to GP, etc)	26	66,7%
Please ALSO click here add any detail you think may be helfpul:	3	7,7%
Total	**39**	

Effective responses : 39
Response rate : 90,7%

Non-response(s) : 4
The most quoted modalities : Time and date patient registered; Time of discharge; Time emergency doctor begins their assessment

The good news....

Extent of ED digitisation:

103. Does your ED use decision support software?

	Frequencies	% Resp.
No.	21	53,8%
Sometimes. Students might have their own apps but we do not formally support this.	0	0%
Sometimes doctors might use decision support apps (like MDcalc) but they are not ED specific.	14	35,9%
Some doctors use their own ED-specific decision support programs.	5	12,8%
Yes. Our ED has licenses to some ED-specific support software but we don't often use them.	2	5,1%
Yes. Our ED has licenses to some ED-specific decision support software and we use it a lot.	0	0%
Sometimes: our management software does have some decision support algorithms connected/ within it.	1	2,6%
Yes. Our patient management software is contains / connects digitally to a fairly complete decision support software.	2	5,1%
I would like to comment...	3	7,7%
Total	39	

Effective responses : 39
Response rate : 90,7%

Non-response(s) : 4
The most quoted modalities : No.; Sometimes doctors might use decision support apps (like MDcalc) but they are not ED specific.; Some doctors use their own ED-specific decision support programs.

Implications for:
- HIMSS adoption model level 6
- Integration of care standards accross Europe (i.e. EUSEM Sycope WG)

How is ED unique from other specialties?

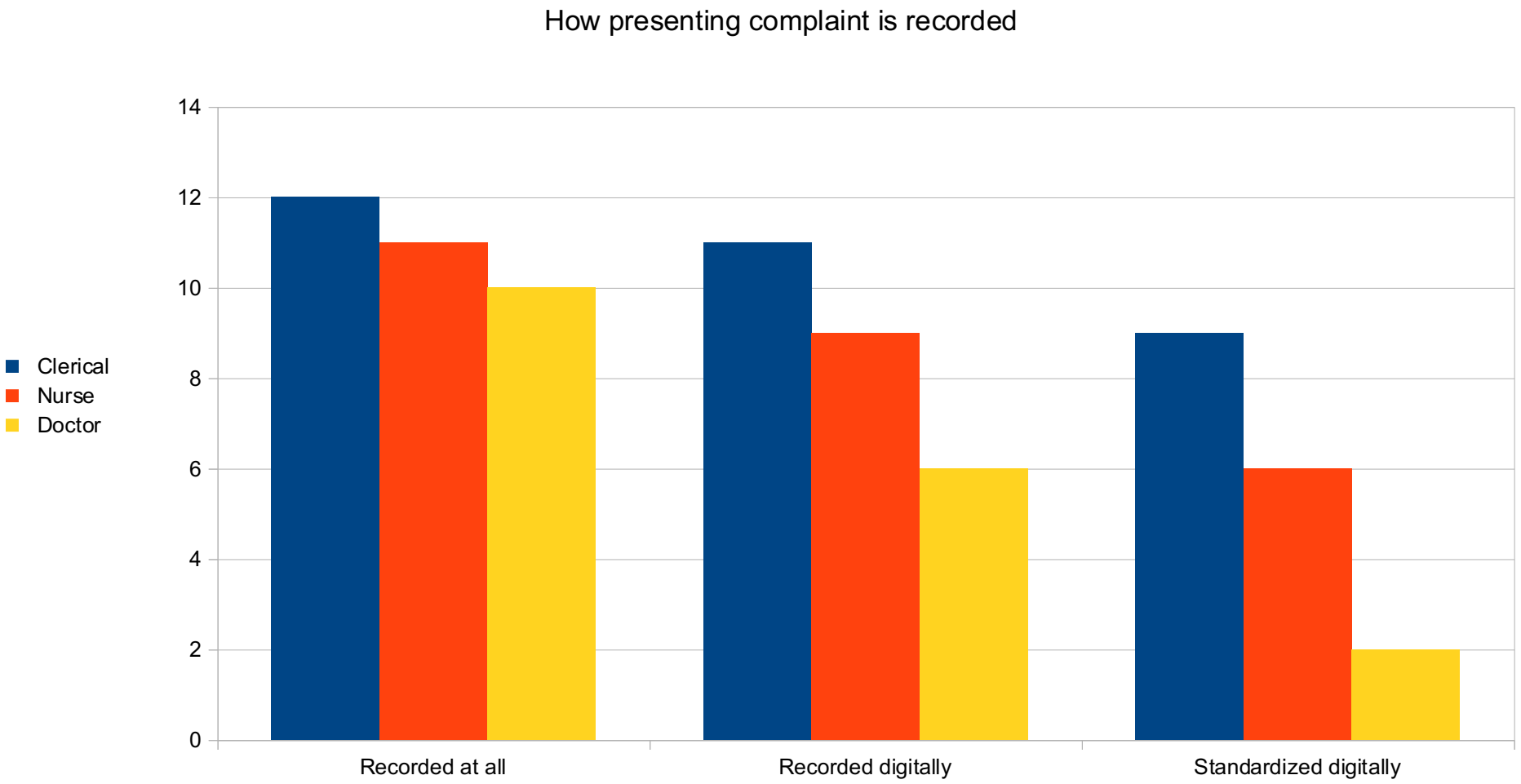
The axis of our practice.

Taking a history

Taking (or receiving) histories is what most of us spend most of our professional life doing: it is worth doing it well. An accurate history is the biggest step in making the correct diagnosis. History-taking, examination, and treatment of a patient begin the moment one reaches the bedside. (The divisions imposed by our page titles are somewhat misleading.) Try to put the patient at ease: a good rapport may relieve distress on its own. It often helps to shake hands. Always introduce yourself. Check whether the patient is comfortable. Be conversational rather than interrogative in tone. General questions (age, occupation, marital status) help break the ice and help assess mental functions.

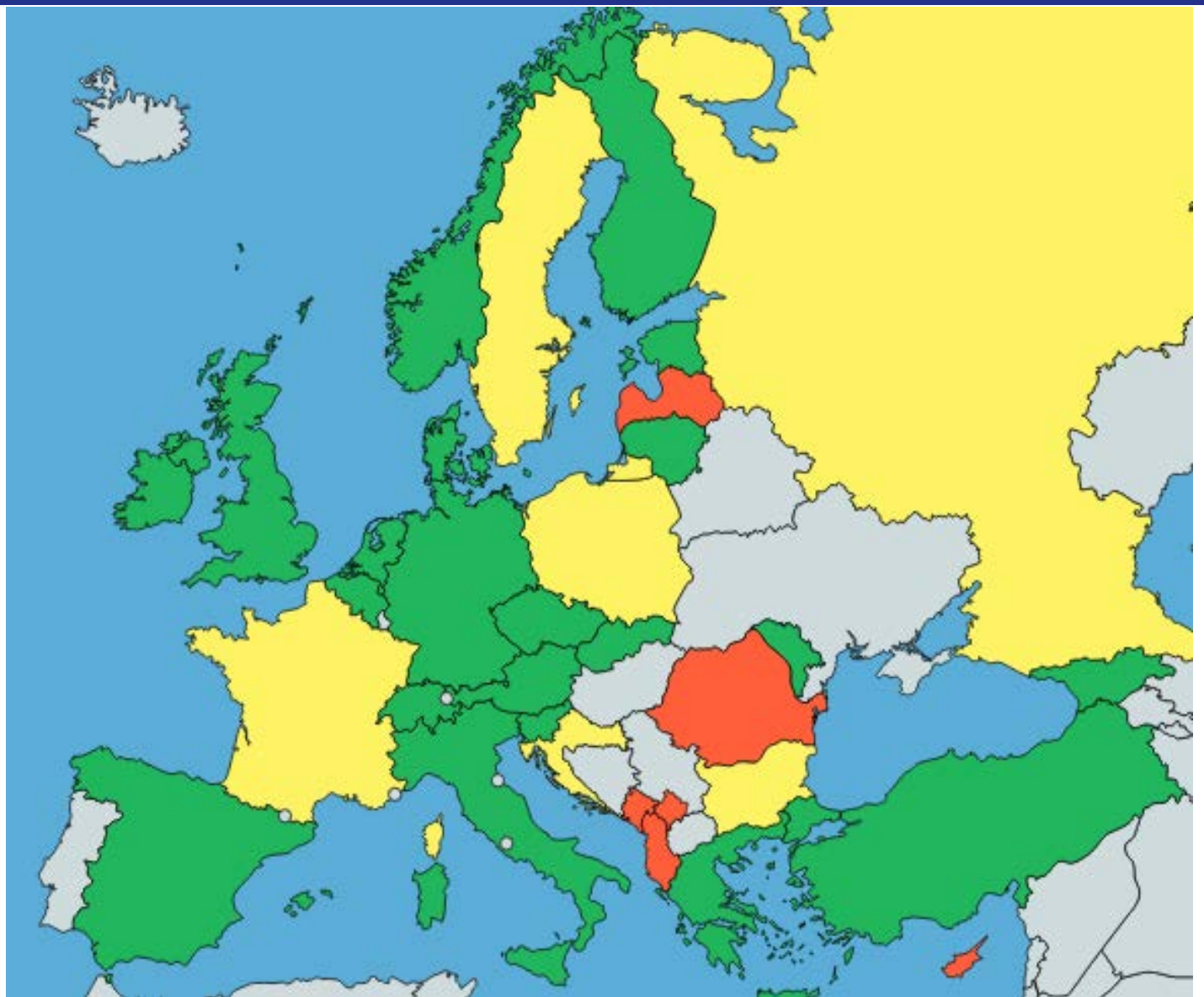
Presenting complaint (PC) 'What has been the trouble recently?' Record the patient's own words rather than, eg 'dyspnoea'.

Who records presenting presenting complaint and in what form?



EUSEM Pan-European Emergency Department database feasibility project

Countries with
SOME FORM of recording presenting complaint::
List (green)
Freetext (yellow)
Paper (red)



71. Do you use an standard coding system for the patients complaint recorded at registration:

	Frequencies	% Resp.
ICD (International Classification of Diseases World Health Organisation)	16	43,2%
ICPC (International Classification of Primary Care, World Health Organisation)	0	0%
CEDIS (Canadian Emergency Department Information Systems)	1	2,7%
MTS (Manchester Triage System)	4	10,8%
Standard list created locally	8	21,6%
Other, specify...	8	21,6%
Total	**37**	**100%**

Effective responses : 37 Non-response(s) : 6
Response rate : 86% The most quoted modalities : ICD (International Classification of Diseases World Health Organisation); Standard list created locally; Other, specify...

73. To your knowledge, would it be possible to extract data from this field (presenting complaint at registration) ?

	Frequencies	% Resp.
No	6	15,8%
Yes, but only manually	5	13,2%
Yes, in automatically generated reports	22	57,9%
I do not know	6	15,8%
Please ALSO click here to add detail if you think this might be helpful....	2	5,3%
Total	**38**	

Effective responses : 38 Non-response(s) : 5
Response rate : 88,4% The most quoted modalities : Yes, in automatically generated reports; No; I do not know

89. At the time of assessment, do doctors make a record of a patient's presenting complaint?

	Frequencies	% Resp.
No	2	5,1%
Yes, only on a paper record	5	12,8%
Yes, on a digital record, but in free text	20	51,3%
Yes, on a digital record, using a dropdown list created locally	6	15,4%
Yes on a digital record, a dropdown list, that is a copy or in some way derived from an international standard list such as ICD, ICPC, CEDIS, MTS	3	7,7%
Please ALSO clicik here to add any detail such as if they use one or more feilds and the type of international codes used such as ICD, ICPC, CEDIS, MTS	3	7,7%
Total	**39**	**100%**

Effective responses : 39
Response rate : 90,7%

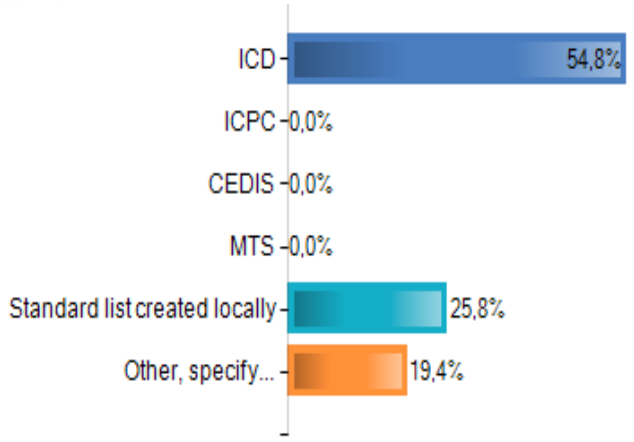
Non-response(s) : 4
The most quoted modalities : Yes, on a digital record, but in free text; Yes, on a digital record, using a dropdown list created locally; Yes, only on a paper record

93. To your knowledge, would it be possible to extract data from this field (presenting complaint as per doctor) ?

	Frequencies	% Resp.
No	3	8,1%
Yes, but only manually	19	51,4%
Yes, in automatically generated reports	15	40,5%
I do not know	2	5,4%
Please ALSO click here add detail you think might be helpful....	0	0%
Total	**37**	

Effective responses : 37
Response rate : 86%

Non-response(s) : 6
The most quoted modalities : Yes, but only manually; Yes, in automatically generated reports; No



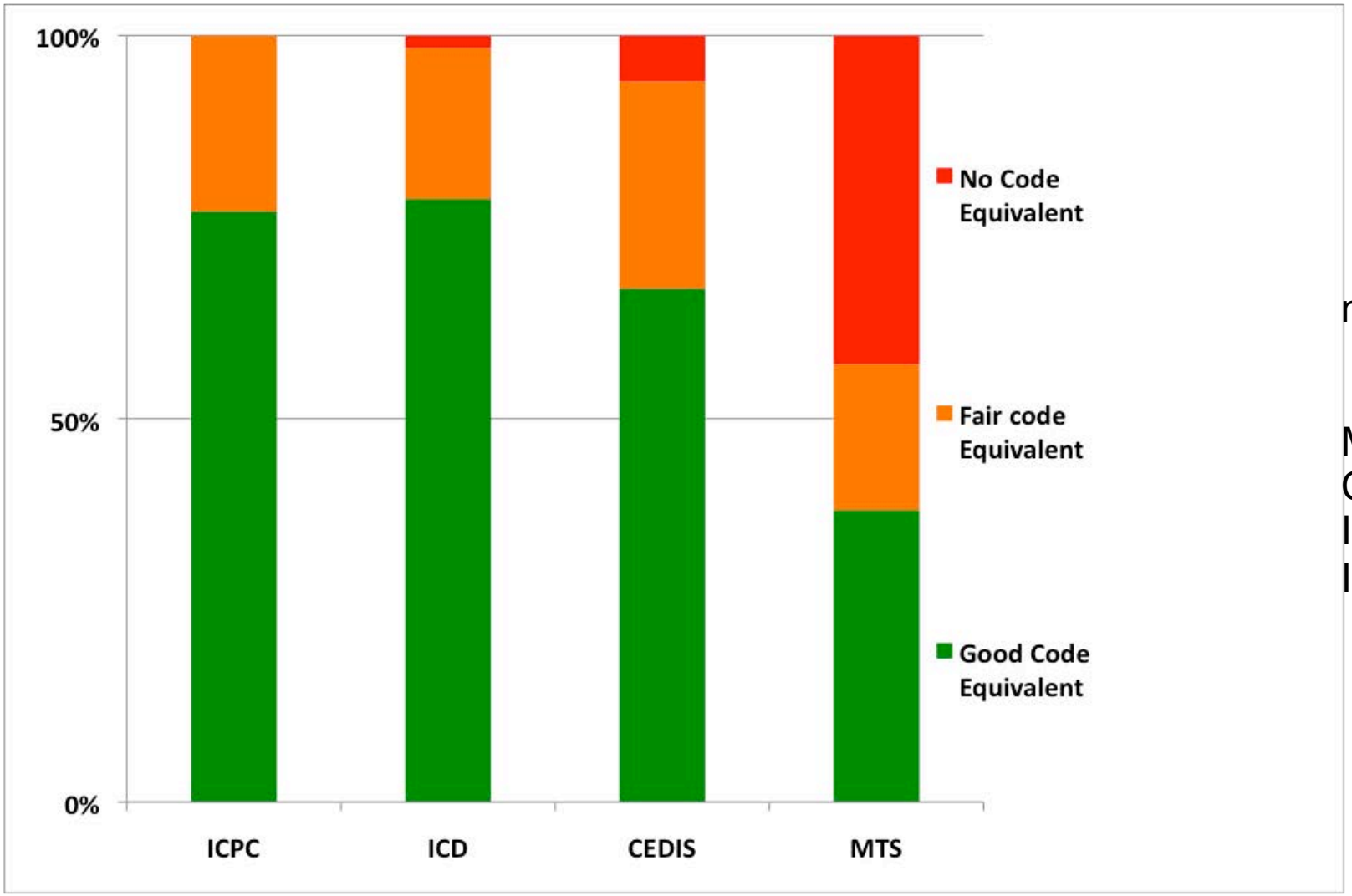
Person Centered Language ISSUE	
1	Road Traffic Accident
2	Alleged Assault
3	Sports Injury
4	Fall
5	Collapse
6	Ill/ Not well generally
7	Unconscious
8	Cardiac Arrest
9	Brought in Dead
10	Self Harm
11	Needlestick Injury
12	Other Wounds
13	Review Requested by patient
14	Review Arranged by Doctor
15	Nursing Review (Wound Management Clinic)
16	Nursing Review
17	Documentation request (Rx, sick note, incident)
18	Other Injury
19	Unable to assign

Person Centered Language COMPLAINTS	
1	Chest Discomfort
2	Palpitations
3	Difficulties Breathing
4	Cough
5	Cough with blood
6	Throat problem
7	Nosebleed
8	Ear problem
9	Eye problem
10	Teeth or gum problem
11	Vomiting
12	Vomiting blood
13	Nausea
14	Pain in abdomen
15	Diarrhoea
16	Constipation
17	Other stool or anal problem (incl. blood)
18	Yellow skin/jaundice
19	Urinary problem
20	Blood in urine
21	Genital problem in female
22	Pregnancy issue
23	Sexual assault
24	Genital problem in male

25	Problem with shoulder/ arm/wrist/hand
26	Problem with hip/leg/ knee/ankle/foot
27	Back pain
28	Neck pain
29	Head injury
30	Cuts/wounds
31	Foreign body
32	Burns and scalds
33	Rash
34	Bites and stings
35	Behaving strangely or Mental health issue
36	Apparently drunk
37	Overdose and poisoning
38	Abnormal sugar readings in person with diabetes
39	Problem in known cancer patient
40	Headache
41	Dizziness
42	Weakness (generalised)
43	Collapse
44	Convulsions/Seizure
45	Weakness of specific area (i.e. arm, face)
46	Fever
46	Speech disturbance
47	Abnormal result or reading
48	Unwell
49	Unable to assign

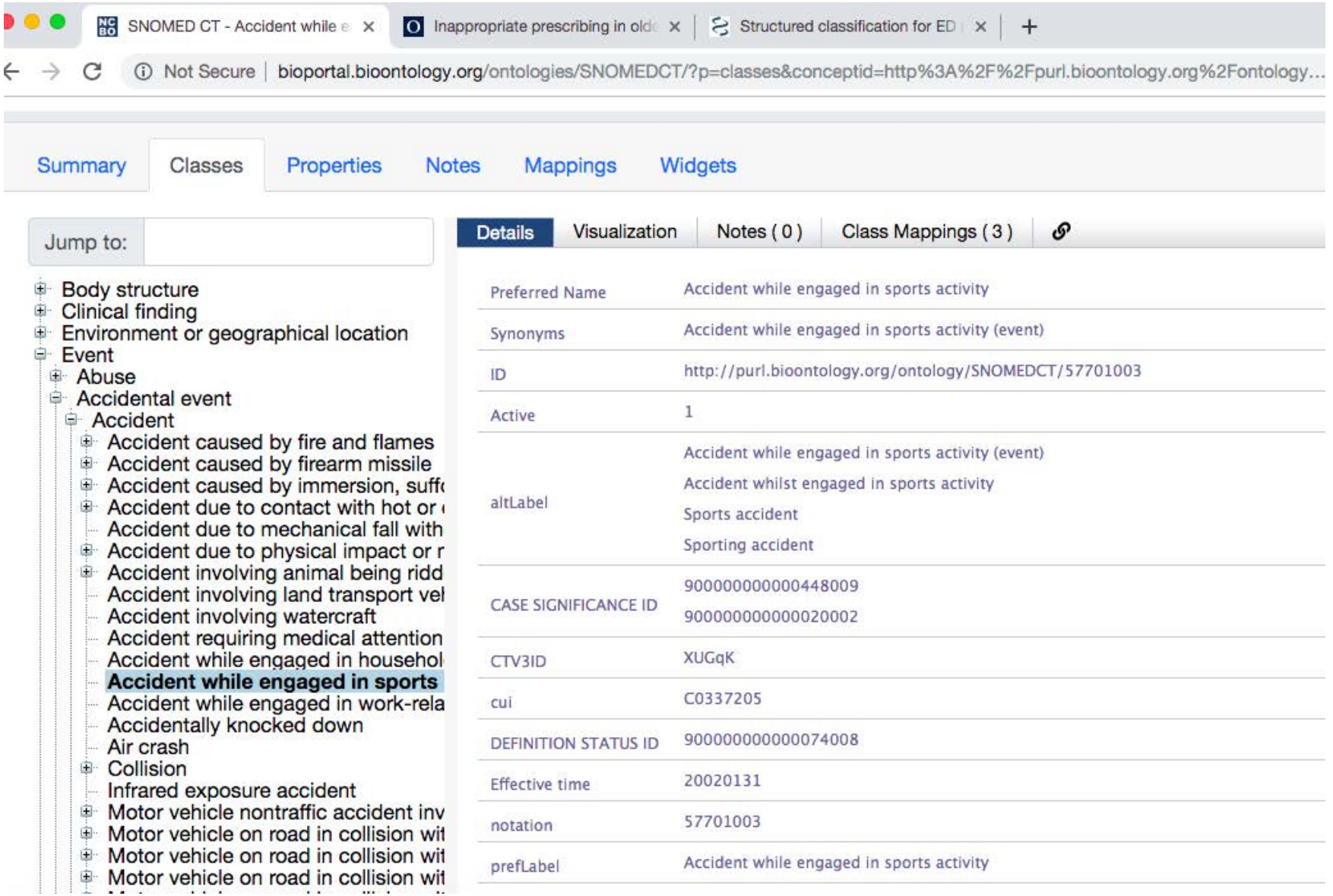
Frequency analysis from

free text to PC >0.1%



no. items per list:

MTS: 52
CEDIS: 166
ICPC: >
ICD: >>


SNOMED CT - Accident while e
Inappropriate prescribing in old
Structured classification for ED
Not Secure
bioportal.bioontology.org/ontologies/SNOMEDCT/?p=classes&conceptid=http%3A%2F%2Fpurl.bioontology.org%2Fontology...
Summary
Classes
Properties
Notes
Mappings
Widgets
Jump to:
Body structure
Clinical finding
Environment or geographical location
Event
Abuse
Accidental event
Accident
Accident caused by fire and flames
Accident caused by firearm missile
Accident caused by immersion, suff
Accident due to contact with hot or
Accident due to mechanical fall with
Accident due to physical impact or r
Accident involving animal being ridd
Accident involving land transport vel
Accident involving watercraft
Accident requiring medical attention
Accident while engaged in household
Accident while engaged in sports
Accident while engaged in work-rela
Accidentally knocked down
Air crash
Collision
Infrared exposure accident
Motor vehicle nontraffic accident inv
Motor vehicle on road in collision wit
Motor vehicle on road in collision wit
Motor vehicle on road in collision wit
Details
Visualization
Notes (0)
Class Mappings (3)
Preferred Name
Accident while engaged in sports activity
Synonyms
Accident while engaged in sports activity (event)
ID
http://purl.bioontology.org/ontology/SNOMEDCT/57701003
Active
1
altLabel
Accident while engaged in sports activity (event)
Accident whilst engaged in sports activity
Sports accident
Sporting accident
CASE SIGNIFICANCE ID
900000000000448009
900000000000020002
CTV3ID
XUGqK
cui
C0337205
DEFINITION STATUS ID
900000000000074008
Effective time
20020131
notation
57701003
prefLabel
Accident while engaged in sports activity

NACRS effective date: April 2018

Cardiovascular (001–050)

Code	Description
001	Cardiac arrest (non-traumatic)
002	Cardiac arrest (traumatic)
003	Chest pain — cardiac features
004	Chest pain — non-cardiac features
005	Palpitations/irregular heartbeat
006	Hypertension
007	General weakness
008	Syncope/pre-syncope
009	Edema, generalized
010	Leg swelling/edema
011	Cool pulseless limb
012	Unilateral reddened hot limb

"We would like to express our concerns regarding the use of CEDIS presenting complaint list.

To our opinion, this list is very long and complicated and, also based on the experience in our centre and some other sites in our country, we believe that this might lead to some miscoding. Especially since... chief complaints are often documented by clerical staff in Europe.
... Furthermore, CEDIS list already includes assumptions about underlying causes (non-cardiac vs cardiac chest pain) which are hardly distinguishable at admission and are also diagnoses are included (syncope).

On the other hand, also symptoms which should be better distinguished are assigned to the same code (cough/congestion)...."

Which way forward?

EUSEM RC Pan-European database:

Local lists ->frequency analysis -> (SNOMED) ->
Extract Transform Load (ETL) unique to each centre

(similar process for minimum dataset)

Opportunity for leadership?

Delphi --> EUSEM PC

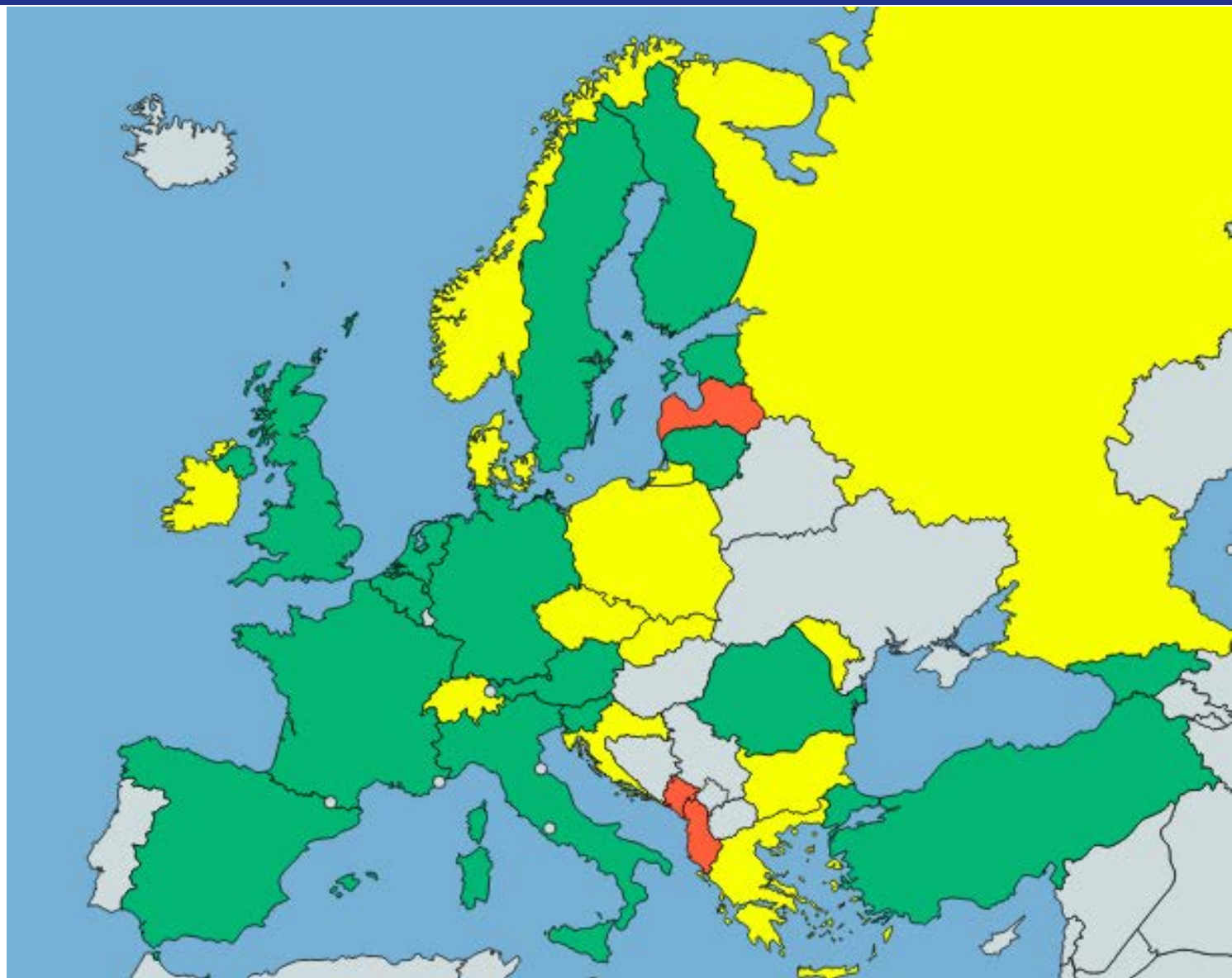
Note: EBEEM core curriculum section 3.3

"This information is crucial for our discipline to move forward"

EUSEM PRAGUE 2019
12-16 OCTOBER
THE EUROPEAN EMERGENCY MEDICINE CONGRESS

EUSEM
Pan-European
Emergency
Department database
feasibility project

SOME FORM
Diagnosis recorded:
digital list (green)
free text (yellow)
Paper (red)



1) What are ED pts accross Europe presenting with?

(2) For each complaint, what are the predominant outcomes and diagnoses?

(the bad news)

TABLE 1. Problems that precipitate presentation to ED in an Irish hospital

Category	%	duration of stay	Mean Age	Admission %
Ill generally	66.9%	03:58	55	23%
Fall	18.8%	02:46	57	10%
Wounds	10.8%	02:28	51	4%
Sports	2.1%	02:25	25	2%
RTA	0.7%	02:51	41	7%
Assault	0.5%	02:46	36	14%
Needlestick	0.3%	01:45	43	0%
Self harm	0.0%	04:13	31	0%
	100.00%			18%

TABLE 1. Problems that precipitate presentation to ED in an Irish hospital

Category	%	duration of stay	Mean Age	Admission %	Complaint 1	Complaint 2	Complaint 3
Ill generally	66.9%	03:58	55	23%			
Fall	18.8%	02:46	57	10%			
Wounds	10.8%	02:28	51	4%			
Sports	2.1%	02:25	25	2%	lower limb (45%)	upper limb (29%)	back pain (5%)
RTA	0.7%	02:51	41	7%	back pain (34%),	neck pain (27%)	upper limb (14%)
Assault	0.5%	02:46	36	14%	head injury (37%)	Non-specific (14%)	upper limb (12%)
Needlestick	0.3%	01:45	43	0%			
Self harm	0.0%	04:13	31	0%			

Table 2. Primary symptom of pts who's problem is "Ill / genereally unwell"

Symptom/Complaint	Frequency %	duration of ED stay	Mean Age	Admission %	Diagnosis 1	Diagnosis 2	Diagnosis 3
abdo pain	15.9%	04:13:00	44	28%			
chest discomfort	12.7%	04:05:00	53	21%			
breathing difficulty	9.9%	04:43:00	65	44%			
urinary problem	5.1%	03:00:00	69	17%			
back pain	4.1%	03:36:00	52	3%			
vomitting	2.8%	04:55:00	51	44%			
collapse/convusion	1.7%	04:38:00	55	47%			
cough	1.5%	04:49:00	59	27%			
dizziness	1.4%	04:27:00	60	37%			
palpitations	1.3%	03:32:00	54	14%			
diarrhoea	1.3%	04:46:00	57	39%			
abnormal result	1.3%	04:04:00	64	41%			
headache	1.2%	03:54:00	42	18%			
weakness (generalised)	1.1%	04:55:00	69	51%			
anal problem	0.6%	03:21:00	41	14%			
fever	0.6%	05:23:00	45	47%			
blood in urine	0.4%	03:59:00	63	5%			
confusion	0.3%	05:14:00	79	84%			
constipation	0.3%	04:21:00	66	27%			
behaving strangely	0.2%	04:22:00	37	50%			
weakness (localised)	0.1%	04:08:00	62	50%			
speech disturbance	0.1%	04:56:00	60	100%			
apparently drunk	0.1%	03:21:00	45	0%			
unable to assign	15.8%	04:01:00	59	38%			
category inconsistency	20.4%						

PC: CHEST PAIN disposistions	prevalence	age
T/F to other hospital CATH LAB	0.1%	
Admission for Inpatient CT	1.0%	
Admission to cardiology	0.6%	
Admission to general medical	22.0%	
D/C to outpatient cardiology Ix	2.2%	
D/C AMA	1.1%	
D/C physiotherapy R/v	0.8%	<45
D/C to outpatient Gastro Ix	0.3%	
D/C to outpatient medical r/v	0.8%	
D/C to outpatient surgical r/v	2.5%	
D/C to scheduled ED review	1.0%	
DNW	1.5%	
GP F/U	54.1%	
No F/U	12.6%	

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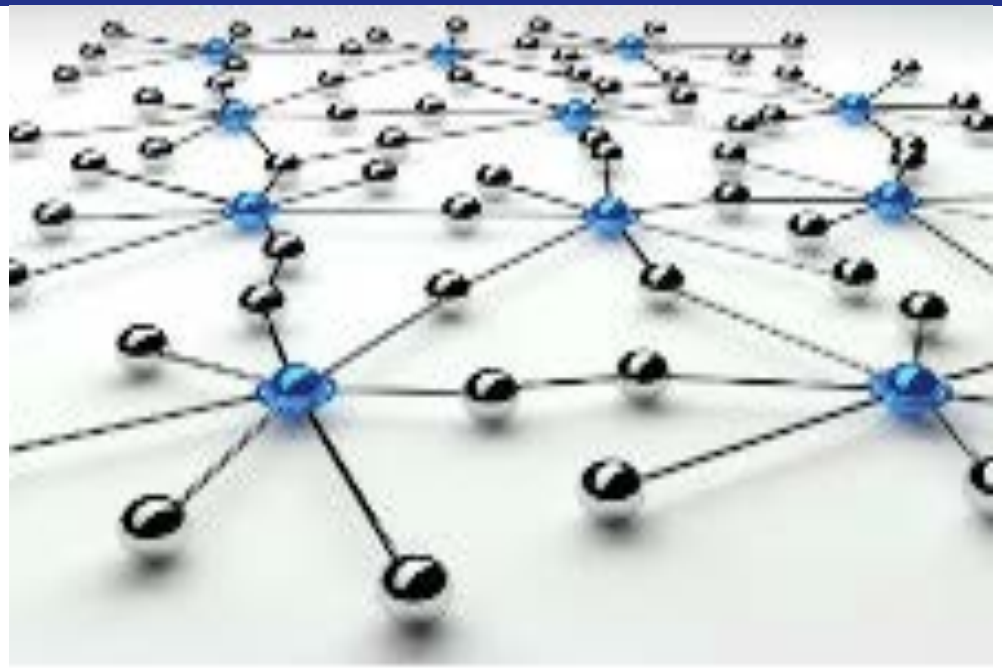

Accident & Emergency Informatics (A&EI)

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