



Queen Mary  
University of London



Barts Health  
NHS Trust

# ECDS

## Emergency Care Data Set

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# SNOMED CT in the NHS

Policy paper

## Personalised health and care 2020: a framework for action

Published 13 November 2014

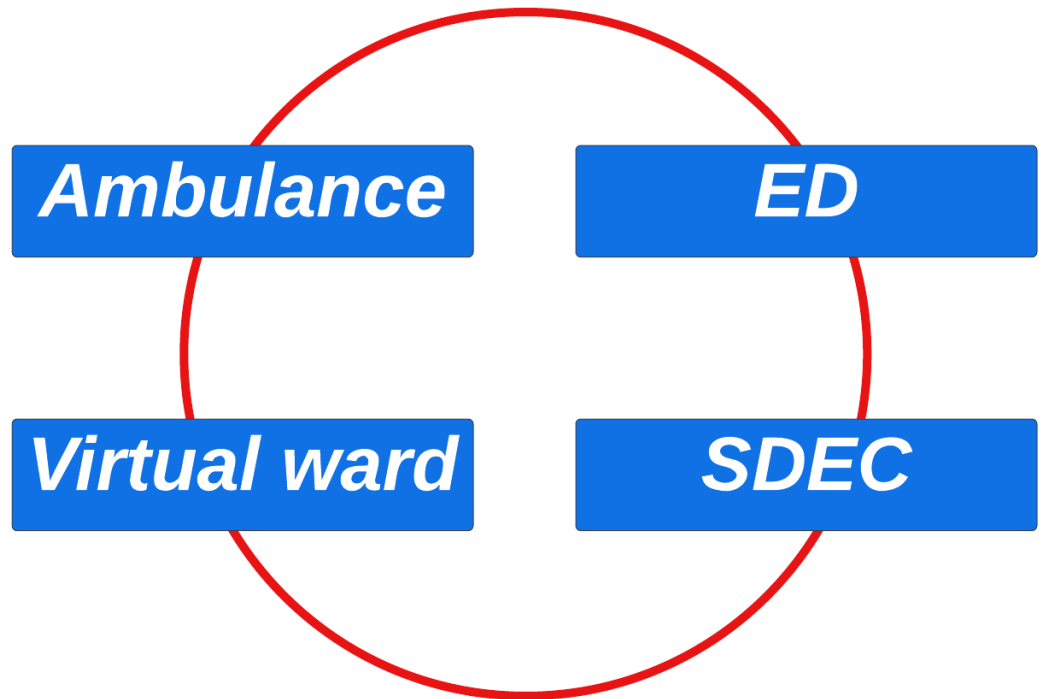
- *Adopt a single clinical terminology – SNOMED CT*
- *All primary care systems adopt SNOMED CT by 2016*
- *The entire health system should adopt SNOMED CT by 2020*



# Urgent & Emergency Care (UEC)

≈ Unplanned care

≈ Unscheduled care



25 million ED attendances

10 million ambulances

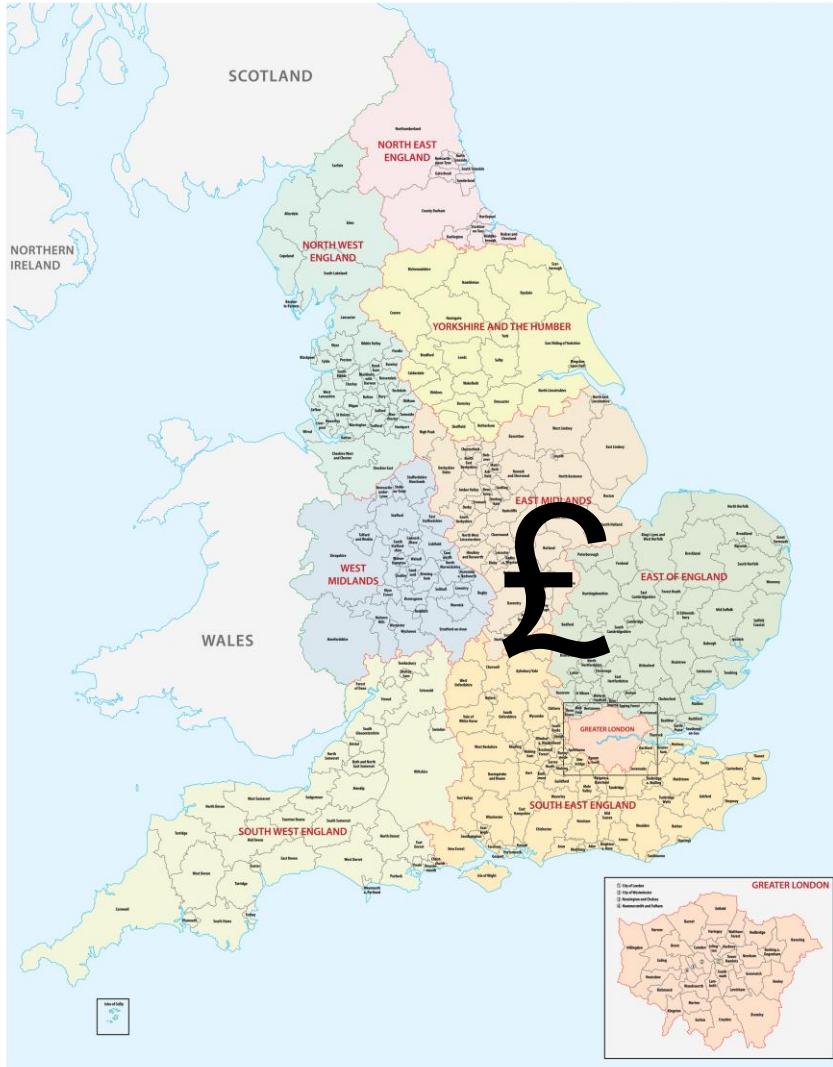
200 consultant led EDs

350 community EDs

NHS budget ~ £140b



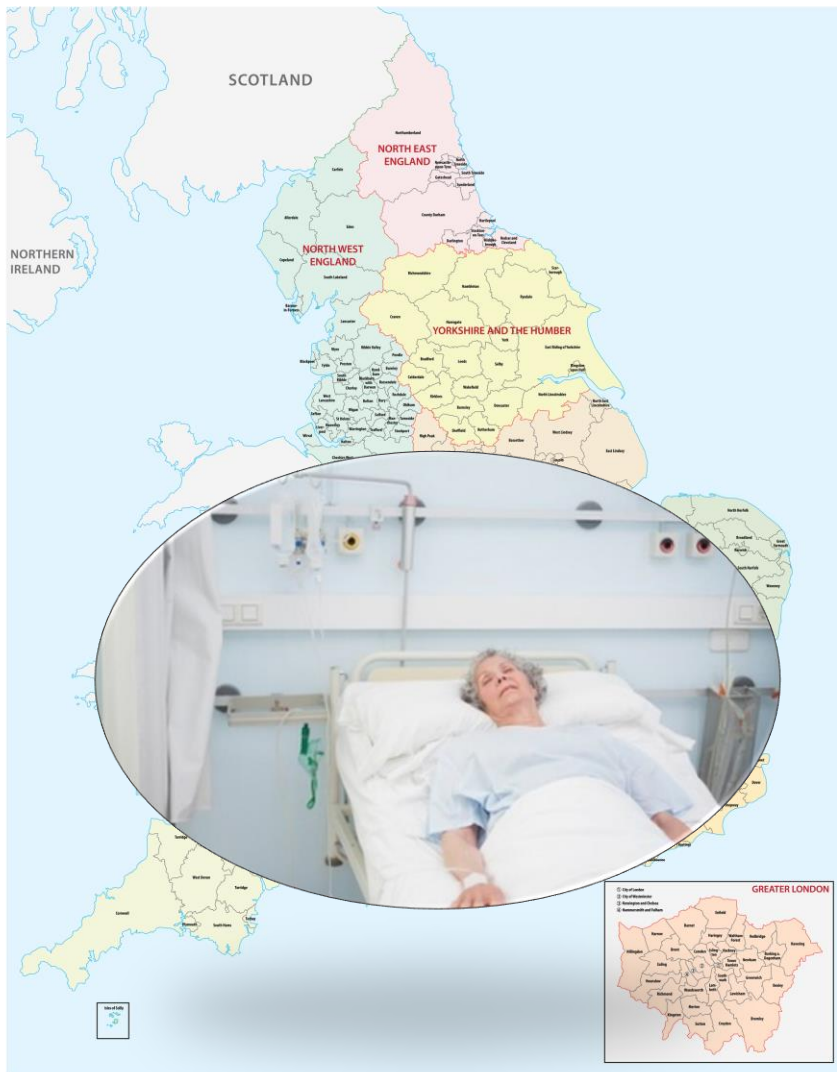




  
England

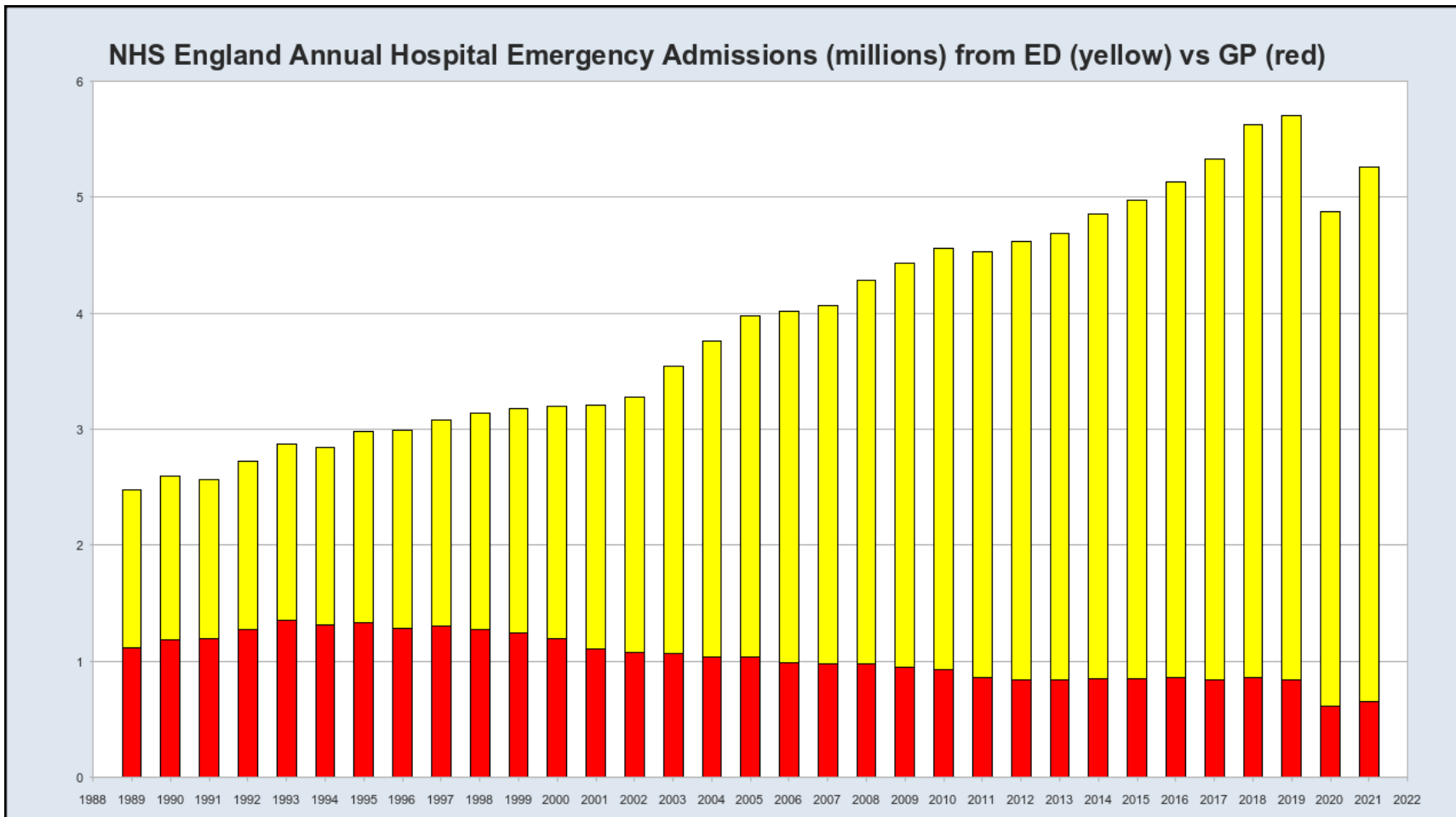
3%





80%





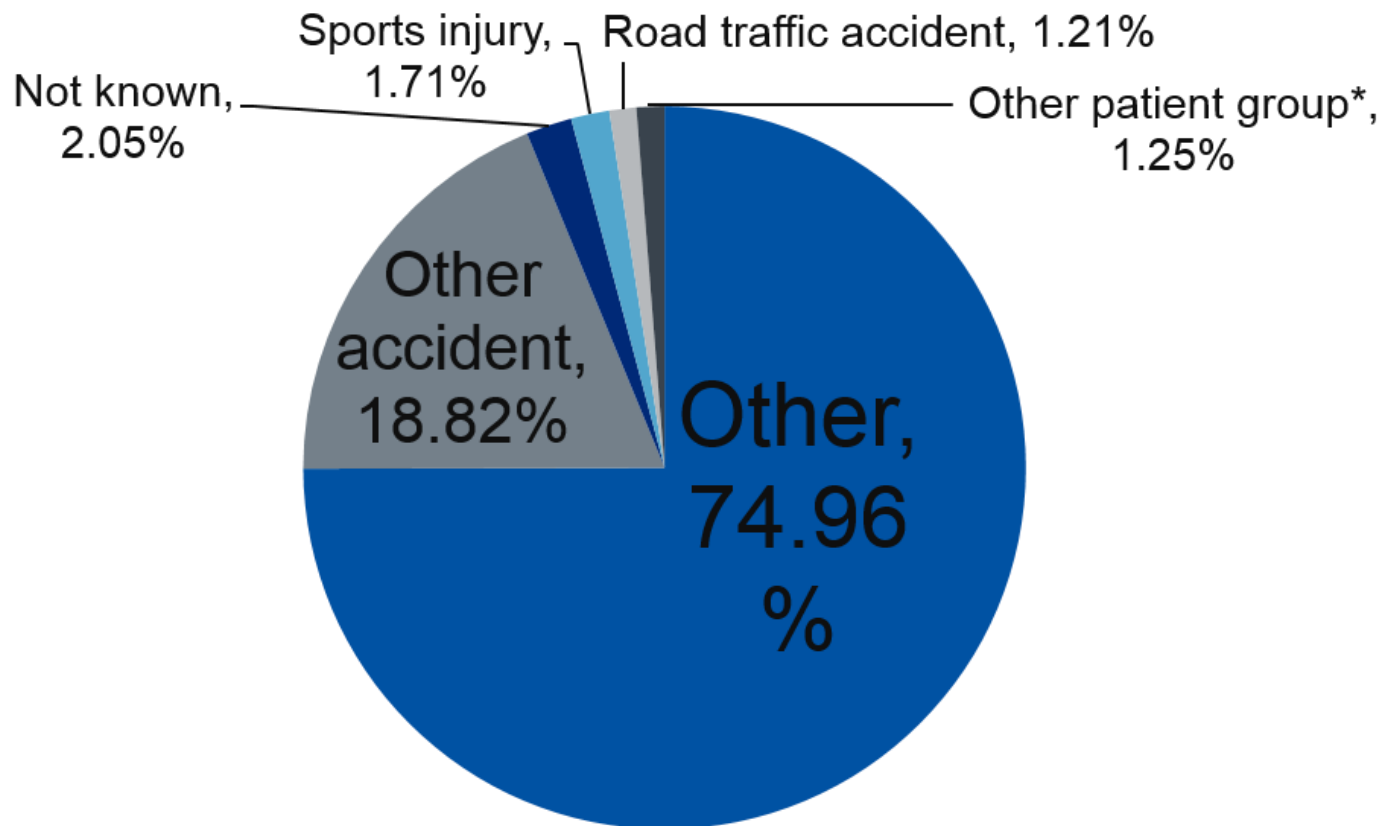
# ECDS background

- Yearly increase in numbers and winter disaster
- ‘Flying Blind’ – Health Select Committee, 2013

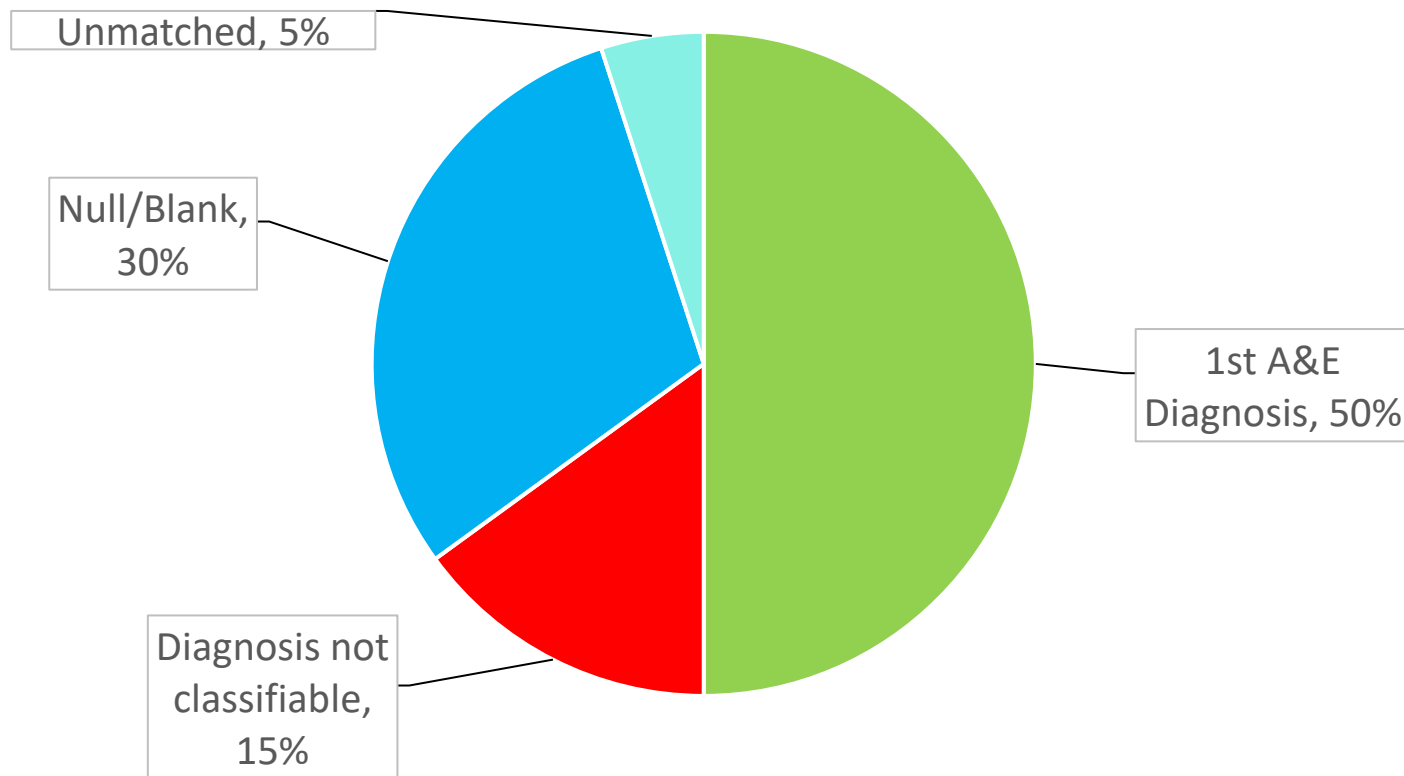




# Reason for attending



# Diagnosis



NHS Digital. 2017. Hospital Accident and Emergency Activity, 2015-16. Accessed 01/02/2017. Available at <http://www.content.digital.nhs.uk/catalogue/PUB23070>



# Clinical safety

Dear Dr

Your patient attended the Emergency Department on: 19/Oct/2017 20:28:00

**Discharge Method:** Usual Place of Residence  
**Outcome:** Discharged no Follow Up  
**Trust/Ward/Clinic:**

**Source of Referral:** Self Referral  
**Incident Occurred At:** Home

**Name:** Undifferentiated illness: GOK - God only knows (finding)

- GOK - God only knows

- Undifferentiated illness: GOK - God only knows

- Undifferentiated illness: GOK - God only knows (finding)

Hide descriptions.

**Concept ID:** 301327002

**Read Codes:** Xa7wA XaEW6

**ICD-10 Codes:** No Cross-Mapping.

**Diagnosis:** GOK - God only knows

**Clinician Comments:** Attended A&E with mother for abdominal pain, examination unremarkable. discharged home with safety netting

● Rape (event) ☆ ↗

SCTID: 248111006

248111006 | Rape (event) |

Rape - assault

Rape

Rape (event)

● Brassica napus (organism) ☆ ↗

SCTID: 112601000

112601000 | Brassica napus (organism) |

Brassica napus

Canola

Rape

Brassica napus (organism)





**NHS GP**

In an Emergency:  
**999**



Same Day  
Emergency  
Care  
(SDEC)



**CLINICAL FRAILTY SCALE**

- 1** **VERY FIT** People who are robust, active, energetic and motivated. They tend to exercise regularly and are among the fittest for their age.
- 2** **FIT** People who have no active disease components but are in the category 1. Often, they exercise in an very active manner (e.g. tennis).
- 3** **MARGINAL** People whose medical problems are well controlled, even if occasionally asymptomatic, but often are not regularly active beyond routine walking.
- 4** **LIVING WITH FRAILTY** Previously "robust": this category marks early transition from complete independence. While not dependent on others for daily help, often experience health problems. A common complaint is being "knocked up" and/or being tired during the day.
- 5** **LIVING WITH FRAILTY** People who often have more incident slowing, and need help with high order instrumental activities of daily living (e.g. driving, transportation, heavy housework). Usually, still fully progressively repairs shopping and walking outside alone, read prescriptions, medications and begins to restrict light housework.

- 6** **LIVING WITH MODERATE FRAILTY** People who need help with all outside activities and with heavier housework. They often have problems with falls and need help with bathing and might need external assistance (e.g., climbing with dressing).
- 7** **LIVING WITH SEVERE FRAILTY** Completely dependent for personal care, from someone other (physical or cognitive). Even so, they seem stable and at high risk of dying (within 4-6 months).
- 8** **LIVING WITH VERY SEVERE FRAILTY** Completely dependent for personal care and approaching end of life. Typically, they would not recover even from a minor illness.
- 9** **TERMINALLY ILL** Approaching the end of life. This category applies to people with a life expectancy of months, who do not otherwise fit any other frailty category. (Many terminally ill people can still recover and very often die.)

**SCORING FRAILTY IN PEOPLE WITH DEMENTIA**  
The degree of frailty generally decreases as the degree of dementia. Clinician judgement is still essential with respect to the health of a patient even though still considering the overall frailty. Frailty is not a condition that is mutually exclusive with dementia and social assistance.

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# Design principles

- Comprehensive
- Exclusive
- No symptoms
- No vague terms
- Normalised (redcar/bluecar/pinkcar vs car that is red/blue/pink)





# ECDS structure

- 22 data groups
- 12 of which contain SNOMED CT coded fields
  
- 123 fields
- 29 of which are SNOMED CT coded



# Patient Characteristics

- Accommodation status (10)
- Preferred spoken language (210)
- Need interpreter? (3)
- Interpreter language (206)



# Attendance Activity Characteristics

- Emergency care arrival mode (9)
- Emergency care attendance source (33)
- Emergency care acuity (5)
- Emergency care chief complaint (142)



# Coded assessments, observations and findings

- Coded assessment tool type (9)
- Coded observation (6)
- Coded finding (11)

Chart 1: The NEWS scoring system

Physiological parameter	Score						
	3	2	1	0	1	2	3
Respiration rate (per minute)	≤8		9–11	12–20		21–24	≥25
SpO <sub>2</sub> Scale 1 (%)	≤91	92–93	94–95	≥96			
SpO <sub>2</sub> Scale 2 (%)	≤83	84–85	86–87	88–92 ≥93 on air	93–94 on oxygen	95–96 on oxygen	≥97 on oxygen
Air or oxygen?		Oxygen		Air			
Systolic blood pressure (mmHg)	≤90	91–100	101–110	111–219			≥220
Pulse (per minute)	≤40		41–50	51–90	91–110	111–130	≥131
Consciousness				Alert			CVPU
Temperature (°C)	≤35.0		35.1–36.0	36.1–38.0	38.1–39.0	≥39.1	

## CLINICAL FRAILITY SCALE

	<b>1</b>	<b>VERY FIT</b>	People who are robust, active, energetic and motivated. They tend to exercise regularly and are among the fittest for their age.
	<b>2</b>	<b>FIT</b>	People who have no active disease symptoms but are less fit than category 1. Often, they exercise or are very active occasionally, e.g., seasonally.
	<b>3</b>	<b>MANAGING WELL</b>	People whose medical problems are well controlled, even if occasionally symptomatic, but often are not regularly active beyond routine walking.
	<b>4</b>	<b>LIVING WITH VERY MILD FRAILITY</b>	Previously "vulnerable," this category marks early transition from complete independence. While not dependent on others for daily help, often symptoms limit activities. A common complaint is being "slowed up" and/or being tired during the day.
	<b>5</b>	<b>LIVING WITH MILD FRAILITY</b>	People who often have more evident slowing, and need help with high order instrumental activities of daily living (finances, transportation, heavy housework). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation, medications and begins to restrict light housework.

	<b>6</b>	<b>LIVING WITH MODERATE FRAILITY</b>	People who need help with all outside activities and with keeping house. Inside, they often have problems with stairs and need help with bathing and might need minimal assistance (cuing, standby) with dressing.
	<b>7</b>	<b>LIVING WITH SEVERE FRAILITY</b>	Completely dependent for personal care, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~6 months).
	<b>8</b>	<b>LIVING WITH VERY SEVERE FRAILITY</b>	Completely dependent for personal care and approaching end of life. Typically, they could not recover even from a minor illness.
	<b>9</b>	<b>TERMINALLY ILL</b>	Approaching the end of life. This category applies to people with a life expectancy <6 months, who are not otherwise living with severe frailty. (Many terminally ill people can still exercise until very close to death.)

### SCORING FRAILITY IN PEOPLE WITH DEMENTIA

The degree of frailty generally corresponds to the degree of dementia. Common symptoms in mild dementia include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

In moderate dementia, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting. In severe dementia, they cannot do personal care without help. In very severe dementia they are often bedfast. Many are virtually mute.

Clinical Frailty Scale ©2005–2020 Rockwood, Version 2.0 (EN). All rights reserved. For permission: [www.genetrisomedicine.ca](http://www.genetrisomedicine.ca)  
Rockwood et al. A global clinical measure of fitness and frailty in elderly people. CMAJ 2005;173:489–495.



# Injury characteristics

- Emergency care place of injury (51)
- **Emergency care injury intent (8)**
- Emergency care injury activity status (5)
- Emergency care injury activity type (147)
- **Emergency care injury mechanism (46)**
- **Emergency care injury alcohol or drug involvement (32)**



NHS England: Violence Reduction  
priority





# Patient Clinical History

- Comorbidity (66)



# Emergency Care Diagnosis

- Emergency care diagnosis (1185)
- Emergency care diagnosis qualifier (2)



# Emergency Care Investigations

- Emergency care clinical investigation (49)



# Emergency Care Treatments

- Emergency care procedure (78)



# Referrals to Other Services

- Referred to service (86)





# Discharge from Emergency Care

- Emergency care discharge status (17)
- Safeguarding concern (46)
- Emergency care discharge destination (17)
- Emergency care discharge follow up (11)
- Emergency care discharge information given (1)



# Research And Disease Outbreak Notification

- Disease outbreak notification (unlimited)





**NHS GP**

In an Emergency:  
**999**



Same Day  
Emergency  
Care  
(SDEC)



**CLINICAL FRAILTY SCALE**

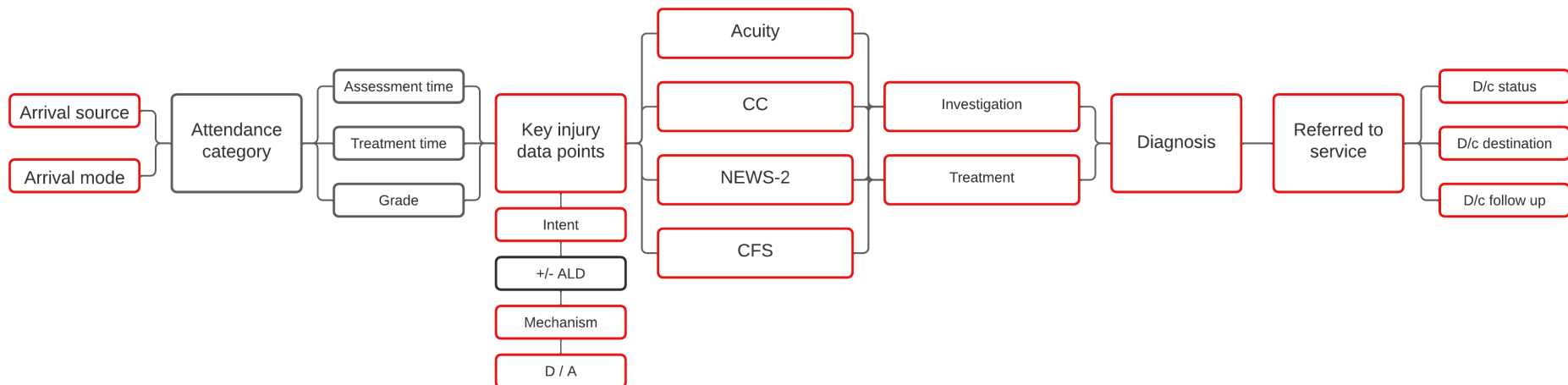
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- 2** **FIT** People who have no active disease components but are in the category 1. Often, they exercise in an very active manner (e.g. tennis).
- 3** **MARGINAL** People whose medical problems are well controlled, even if occasionally asymptomatic, but often are not regularly active beyond routine walking.
- 4** **LIVING WITH FRAILTY** Previously "robust", this category marks early transition from complete independence. While not dependent on others for daily help, other symptoms limit activities. A common complaint is being "tired out" and/or being tired during the day.
- 5** **LIVING WITH FRAILTY** People who often have more incident slowing, and need help with high order instrumental activities of daily living (e.g. driving, transportation, heavy housework). Usually, still fully progressively requires shopping and walking outside alone, need preparation, medications and begins to restrict light housework.

- 6** **LIVING WITH MODERATE FRAILTY** People who need help with all outside activities and with heavier housework. They often have problems with falls and need help with bathing and might need external assistance (e.g., standing with dressing).
- 7** **LIVING WITH SEVERE FRAILTY** Completely dependent for personal care, from someone other (physical or cognitive). Even so, they seem stable and at high risk of dying (within 4-6 months).
- 8** **LIVING WITH SEVERE FRAILTY** Completely dependent for personal care and approaching end of life. Typically, they would not recover even from a minor illness.
- 9** **TERMINALLY ILL** Approaching the end of life. This category applies to people with a life expectancy of months, who do not otherwise fit any other frailty category. (Many terminally ill people can still exercise and very active in death.)

**SCORING FRAILTY IN PEOPLE WITH DEMENTIA**  
The degree of frailty generally decreases as the degree of dementia. Clinician judgement is still essential with respect to the health of a patient even though still considering the overall frailty. Frailty can be more common than social assistance.

**DALHOUSIE UNIVERSITY**  
Clinical Frailty Scale (CFS) - 2016 Revisions  
©2016 by Dalhousie University. All rights reserved. For more information, please contact: [www.geriatrics.dal.ca](http://www.geriatrics.dal.ca) or [www.dal.ca/geriatrics](http://www.dal.ca/geriatrics)



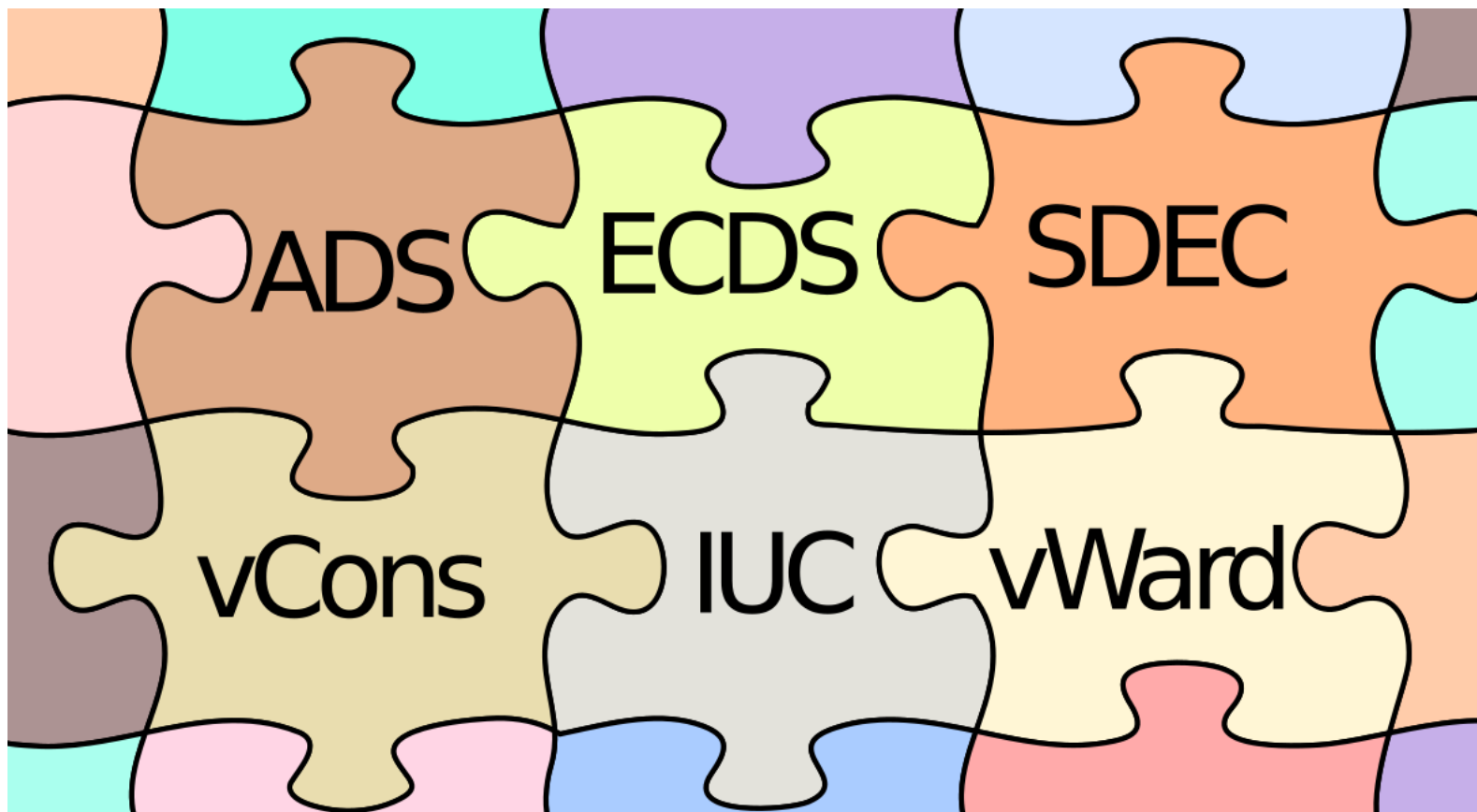




# Virtual Ward

# SDEC

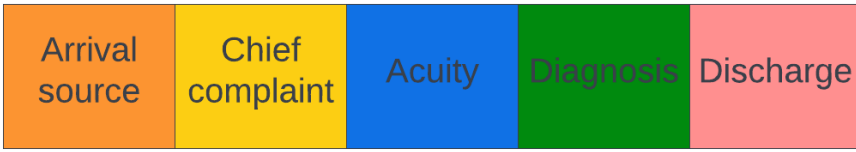




100%  
100%  
100%







Ambulance



ED



SDEC



Virtual Ward



# ECDS-max



Diagnosis  
lists  
considered

ECDS ~ 1,200

KP ~ 23,500

TRUD ~ 106,000

SCT UK ~ 326,000



# Intention

Create list of unique diagnoses which each point to or are children of a unique ECDS diagnosis



# Transitive closure table

- Store hierarchical graph in flat table
- Allows an antecedent to be associated (using |Is A|)
  - with a descendent
  - and include levels of descent



## Parents

- > ☰ Ischemic heart disease (disorder)
- > ☰ Myocardial disease (disorder)
- > ☰ Myocardial necrosis (finding)
- > ☰ Necrosis of anatomical site (disorder)

### ☰ Myocardial infarction (disorder) ★ 📄

SCTID: 22298006

22298006 | Myocardial infarction (disorder) |

- Myocardial infarction
- Infarction of heart
- Cardiac infarction
- Heart attack
- Myocardial infarction (disorder)
- Myocardial infarct
- MI - myocardial infarction

Associated morphology → Infarct

Finding site → Myocardium structure

## Children (14)

- ▼ ☰ Acute myocardial infarction (disorder)
  - ☰ Acute anteroapical myocardial infarction (disorder)
  - ▼ ☰ Acute anteroseptal myocardial infarction (disorder)
    - ☰ Acute non-Q wave infarction - anteroseptal (disorder)
    - ☰ Acute Q wave infarction - anteroseptal (disorder)
    - ☰ Acute ST segment elevation myocardial infarction of anteroseptal wall (disorder)
  - ☰ Acute atrial infarction (disorder)
  - > ☰ Acute myocardial infarction due to left coronary artery occlusion (disorder)
  - > ☰ Acute myocardial infarction due to right coronary artery occlusion (disorder)
  - ☰ Acute myocardial infarction during procedure (disorder)
  - > ☰ Acute myocardial infarction of anterior wall (disorder)
  - > ☰ Acute myocardial infarction of anterolateral wall (disorder)

## Parents

- > ≡ Ischemic heart disease (disorder)
- > ≡ Myocardial disease (disorder)
- > ≡ Myocardial necrosis (finding)
- > ≡ Necrosis of anatomical site (disorder)

### Myocardial infarction (disorder)

SCTID: 22298006

22298006 | Myocardial infarction (disorder) |

- Myocardial infarction
- Infarction of heart
- Cardiac infarction
- Heart attack
- Myocardial infarction (disorder)
- Myocardial infarct
- MI - myocardial infarction



Associated morphology → Infarct  
Finding site → Myocardium structure

Myocardial infarction (disorder)	Acute myocardial infarction (disorder)	1
Myocardial infarction (disorder)	Acute anteroseptal myocardial infarction (disorder)	2
Myocardial infarction (disorder)	Acute Q wave infarction - anteroseptal (disorder)	3
Acute myocardial infarction (disorder)	Acute Q wave infarction - anteroseptal (disorder)	2

## Children (14)

- ▼ ≡ Acute myocardial infarction (disorder)
  - ≡ Acute anteroapical myocardial infarction (disorder)
  - ▼ ≡ Acute anteroseptal myocardial infarction (disorder)
    - ≡ Acute non-Q wave infarction - anteroseptal (disorder)
    - ≡ Acute Q wave infarction - anteroseptal (disorder)
    - ≡ Acute ST segment elevation myocardial infarction of anteroseptal wall (disorder)
  - ≡ Acute atrial infarction (disorder)
  - > ≡ Acute myocardial infarction due to left coronary artery occlusion (disorder)
  - > ≡ Acute myocardial infarction due to right coronary artery occlusion (disorder)
  - ≡ Acute myocardial infarction during procedure (disorder)
  - > ≡ Acute myocardial infarction of anterior wall (disorder)
  - > ≡ Acute myocardial infarction of anterolateral wall (disorder)





**NHS**

**Digital**

**TRUD**



# SNOMED CT UK Monolith Edition, RF2: Snapshot

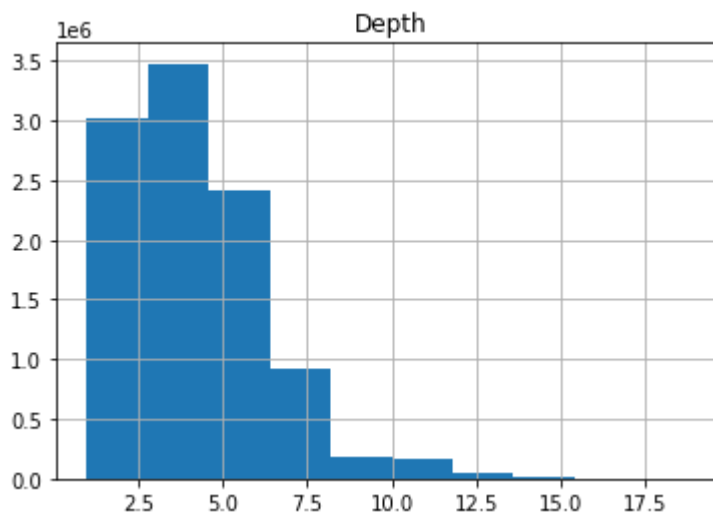


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2.5 GB SnomedCT_MonolithRF2_PRODUCTION_20220316T120000Z	2.5 GB	2.5 GB	24	7	100.0 %
2.5 GB Snapshot	2.5 GB	2.5 GB	22	6	100.0 %
1.1 GB Refset	1.1 GB	1.1 GB	15	4	42.8 %
370.2 MB Content	370.1 MB	370.2 MB	3	0	34.3 %
36.6 MB der2_cRefset_AssociationMONOSnapshot_GB_20220316.txt	36.6 MB	36.6 MB	1	0	9.9 %
143.7 MB der2_cRefset_AttributeValueMONOSnapshot_GB_20220316.txt	143.7 MB	143.7 MB	1	0	38.8 %
189.8 MB der2_Refset_SimpleMONOSnapshot_GB_20220316.txt	189.8 MB	189.8 MB	1	0	51.3 %
659.1 MB Language	659.1 MB	659.1 MB	1	0	61.1 %
659.1 MB der2_cRefset_LanguageMONOSnapshot-en_GB_20220316.txt	659.1 MB	659.1 MB	1	0	100.0 %
49.7 MB Map	49.7 MB	49.7 MB	4	0	4.6 %
0 Bytes der2_iissscRefset_ExtendedMapMONOSnapshot_GB_20220316.txt	142 Bytes	0 Bytes	1	0	0.0 %
0 Bytes der2_iisscRefset_ExtendedMapMONOSnapshot_GB_20220316.txt	137 Bytes	0 Bytes	1	0	0.0 %
0 Bytes der2_iissscRefset_ComplexMapMONOSnapshot_GB_20220316.txt	128 Bytes	0 Bytes	1	0	0.0 %
49.7 MB der2_sRefset_SimpleMapMONOSnapshot_GB_20220316.txt	49.7 MB	49.7 MB	1	0	100.0 %
328.0 KB Metadata	313.4 KB	328.0 KB	7	0	0.0 %
152.0 KB der2_cciRefset_RefsetDescriptorMONOSnapshot_GB_20220316.txt	150.5 KB	152.0 KB	1	0	46.3 %
4.0 KB der2_ciRefset_DescriptionTypeMONOSnapshot_GB_20220316.txt	489 Bytes	4.0 KB	1	0	1.2 %
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4.0 KB der2_cRefset_MRCModuleScopeMONOSnapshot_GB_20220316.txt	403 Bytes	4.0 KB	1	0	1.2 %
52.0 KB der2_ssscRefset_MRCMAAttributeRangeMONOSnapshot_GB_20220316.txt	50.2 KB	52.0 KB	1	0	15.9 %
8.0 KB der2_ssRefset_ModuleDependencyMONOSnapshot_GB_20220316.txt	5.4 KB	8.0 KB	1	0	2.4 %
88.0 KB der2_ssssssRefset_MRCMDomainMONOSnapshot_GB_20220316.txt	87.4 KB	88.0 KB	1	0	26.8 %
1.4 GB Terminology	1.4 GB	1.4 GB	7	0	57.2 %
64.0 MB sct2_Concept_MONOSnapshot_GB_20220316.txt	64.0 MB	64.0 MB	1	0	4.4 %
451.7 MB sct2_Description_MONOSnapshot-en_GB_20220316.txt	451.7 MB	451.7 MB	1	0	31.3 %
0 Bytes sct2_Identifier_MONOSnapshot_GB_20220316.txt	92 Bytes	0 Bytes	1	0	0.0 %
924.3 MB sct2_Relationship_MONOSnapshot_GB_20220316.txt	924.3 MB	924.3 MB	1	0	64.1 %
0 Bytes sct2_sRefset_OWLEExpressionMONOSnapshot_GB_20220316.txt	79 Bytes	0 Bytes	1	0	0.0 %
0 Bytes sct2_StatedRelationship_MONOSnapshot_GB_20220316.txt	114 Bytes	0 Bytes	1	0	0.0 %
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8.0 KB Readme-en.txt	4.1 KB	8.0 KB	1	0	0.0 %
4.0 KB release_package_information.json	2.0 KB	4.0 KB	1	0	0.0 %

# Monolith TC (python - github)

- 10,236,374 rows
- 3 columns

Count	10,236,370
Mean	3.98
Std	2.25
Min	1
25%	2
50%	4
75%	5
Max	19



# Step 1

ECDS

1,185 terms



# Step 2

**Expand ECDS  
to all children**

**130,293 terms**





# Step 3

**Remove  
duplicate rows**

**73,626 terms**



# Step 4

List  
descendent  
levels

Up to 9 levels





# Child level example

ECDS Parent	Kidney disease (disorder) (90708001)
Child term 1	Disorder of renal parenchyma (disorder) (767094002)
Child term 2	Nephritis (disorder) (52845002)
Child term 3	Glomerulonephritis (disorder) (36171008)
Child term 4	Chronic glomerulonephritis (disorder) (20917003)
Child term 5	Chronic proliferative glomerulonephritis (disorder) (195791000119101)
Child term 6	Chronic mesangial proliferative glomerulonephritis (disorder) (197613008)
Child term 7	Mesangiocapillary glomerulonephritis (disorder) (80321008)
Child term 8	Mesangiocapillary glomerulonephritis type III (disorder) (236409000)
Child term 9	Acute nephritic syndrome co-occurrent and due to membranoproliferative glomerulonephritis type III (disorder) (368871000119106)



ECDS core term	<b>Disorder of nervous system (disorder) (118940003)</b>	<b>Disorder of nervous system (disorder) (118940003)</b>
Child Level 1	Disorder of the central nervous system (disorder) (23853001)	Disorder of the central nervous system (disorder) (23853001)
Child Level 2	Disorder of meninges (disorder) (15758002)	Inflammatory disease of the central nervous system (disorder) (39367000)
Child Level 3	Meningitis (disorder) (7180009)	Meningitis (disorder) (7180009)
Child Level 4	Infective meningitis (disorder) (312216007)	Infective meningitis (disorder) (312216007)
Child Level 5	Bacterial meningitis (disorder) (95883001)	Bacterial meningitis (disorder) (95883001)
Child Level 6	Bacterial meningitis due to Gram-negative bacteria (disorder) (425887005)	Bacterial meningitis due to Gram-negative bacteria (disorder) (425887005)
Child Level 7	Gonococcal meningitis (disorder) (151004)	Gonococcal meningitis (disorder) (151004)



# Step 5

**Identify most  
and how far  
descended**

**73,626 terms**



# Most and how childlike example

ECDS core term	Disorder of nervous system (disorder) (118940003)	Disorder of nervous system (disorder) (118940003)
Child Level 1	Disorder of the central nervous system (disorder) (23853001)	Disorder of the central nervous system (disorder) (23853001)
Child Level 2	Spinal cord disorder (disorder) (48522003)	Infectious disease of central nervous system (disorder) (128117002)
Child Level 3	Myelitis (disorder) (41370002)	Bacterial infection of central nervous system (disorder) (128119004)
Child Level 4	Tuberculous myelitis (disorder) (34320001)	Mycobacterial infection of the central nervous system (disorder) (406594003)
Child Level 5		Tuberculosis of central nervous system (disorder) (10706006)
Child Level 6		Tuberculous myelitis (disorder) (34320001)





# Most and how childlike example

ECDS core term	Disorder of nervous system (disorder) (118940003)	Disorder of nervous system (disorder) (118940003)
Child Level 1		
Child Level 2		
Child Level 3		
Child Level 4	Tuberculous myelitis (disorder) (34320001)	
Child Level 5		
Child Level 6		Tuberculous myelitis (disorder) (34320001)



# Most and how childlike example

ECDS core term		Disorder of nervous system (disorder) (118940003)
Child Level 1		
Child Level 2		
Child Level 3		
Child Level 4		
Child Level 5		
Child Level 6		Tuberculous myelitis (disorder) (34320001)



# Step 6

Identify &  
retain subset  
of equally  
descended  
terms

~2,500 terms

ECDS core term	Acute renal failure syndrome (disorder) (14669001)	Hepatic failure (disorder) (59927004)
Child Level 1	Hepatorenal syndrome (disorder) (51292008)	Hepatorenal syndrome (disorder) (51292008)



# Step 7

Retain unique  
most  
descended  
terms

53,889 terms



# Frequency of ECDS terms

Congenital disease	6088
Other nervous system disorder	3037
Poisoning (NOT plant / venom / gas / vapour)	2821
Adverse drug reaction	1373
Other allergic reaction	1340
Genetic disorder	1039
Other endocrine disorder	929
Heart valve disorder	763
Other renal system disorder (see free text)	714
Congenital heart disease	616
Neoplasm of bone	502



# Examples of child terms – hypocalcaemia (23)

Hypocalcaemia	5291005	
Hypocalcaemia	5291005	Pseudohypoparathyroidism type I A (disorder)
Hypocalcaemia	5291005	Hungry bones syndrome (disorder)
Hypocalcaemia	5291005	Drug-induced hypocalcemia (disorder)
Hypocalcaemia	5291005	Hypocalcemic tetany (disorder)
Hypocalcaemia	5291005	Parturient paresis (disorder)
Hypocalcaemia	5291005	Hypocalcemia of late pregnancy or lactation (disorder)
Hypocalcaemia	5291005	Pseudohypoparathyroidism type 1C (disorder)
Hypocalcaemia	5291005	Autosomal dominant hypocalcemia (disorder)
Hypocalcaemia	5291005	Hypocalcemic rickets (disorder)
Hypocalcaemia	5291005	Phosphate-loading hypocalcemia (disorder)
Hypocalcaemia	5291005	Hypocalcemia of puerperium (disorder)
Hypocalcaemia	5291005	Parathyroid hypocalcemic tetany (disorder)
Hypocalcaemia	5291005	Hypocalcemia (disorder)
Hypocalcaemia	5291005	Pseudohypoparathyroidism type I B (disorder)
Hypocalcaemia	5291005	Pseudohypoparathyroidism type II (disorder)
Hypocalcaemia	5291005	Pseudohypoparathyroidism (disorder)
Hypocalcaemia	5291005	Lactation tetany (disorder)
Hypocalcaemia	5291005	Pseudohypoparathyroidism and pseudopseudohypoparathyroidism (disorder)
Hypocalcaemia	5291005	Pseudopseudohypoparathyroidism (disorder)
Hypocalcaemia	5291005	Late neonatal hypocalcemia (disorder)
Hypocalcaemia	5291005	Cow's milk hypocalcemia of newborn (disorder)
Hypocalcaemia	5291005	Neonatal hypocalcemia (disorder)



# Examples of child terms – Migraine (37)

Migraine	37796009	
Migraine	37796009	Migraine variants (disorder)
Migraine	37796009	Complicated migraine (disorder)
Migraine	37796009	Non-familial hemiplegic migraine (disorder)
Migraine	37796009	Migraine aura without headache (disorder)
Migraine	37796009	Migraine with typical aura (disorder)
Migraine	37796009	Status migrainosus (disorder)
Migraine	37796009	Migraine due to estrogen contraceptive (disorder)
Migraine	37796009	Stroke co-occurrent with migraine (disorder)
Migraine	37796009	Status migrainosus co-occurrent and due to migraine without aura (disorder)
Migraine	37796009	Menstrual status migrainosus (disorder)
Migraine	37796009	Migraine induced by oestrogen contraceptive (disorder)
Migraine	37796009	Allergic migraine (disorder)
Migraine	37796009	Refractory migraine with aura (disorder)
Migraine	37796009	Refractory migraine without aura (disorder)
Migraine	37796009	Refractory migraine variants (disorder)
Migraine	37796009	Refractory migraine (disorder)
Migraine	37796009	Migraine with persistent visual aura (disorder)
Migraine	37796009	Chronic intractable migraine without aura (disorder)
Migraine	37796009	Acute confusional migraine (disorder)
Migraine	37796009	Migraine without aura, not refractory (disorder)
Migraine	37796009	Migraine variants, not intractable (disorder)
Migraine	37796009	Intractable ophthalmic migraine (disorder)
Migraine	37796009	Transformed migraine (disorder)
Migraine	37796009	Migraine variant with headache (disorder)
Migraine	37796009	Migraine without aura (disorder)
Migraine	37796009	Hemiplegic migraine (disorder)
Migraine	37796009	Retinal migraine (disorder)
Migraine	37796009	Chronic mixed headache syndrome (disorder)



## Consultation on a diagnostic code set for Same Day Emergency Care

- ECDS-Max contains sufficient detail and is fit for purpose in its current form and should be implemented in SDEC to record diagnoses
- NHS England should commission NHS Digital to publish and maintain ECDS-Max for use in SDEC





# ECDS max further work

- Chief complaint max
- Comorbidities max
- Investigations max
- Treatments max
  
- Interested parties?

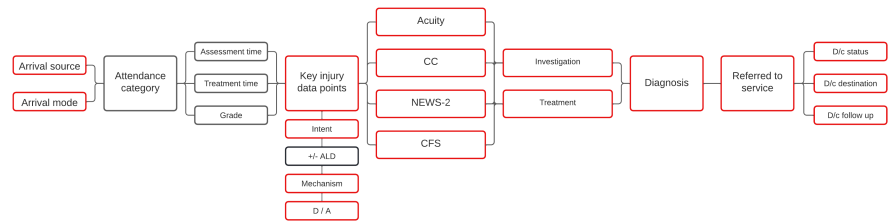


# ECDS uses

- Clinical safety
- Handover between organisations
- Coding entire journey within organisation



	Arrival source	Chief complaint	Acuity	Investigation	Discharge
Ambulance	Orange	Yellow	Blue	Green	Red
ED	Orange	Yellow	Blue	Green	Red
SDEC	Orange	Yellow	Blue	Green	Red
Virtual Ward	Orange	Yellow	Blue	Green	Red



# ECDS uses

- Biosecurity
  - Diagnosis
  - Disease notification outbreak
  - Part of the PM's COBR briefing pack during pandemic

SNOMED_Code	SNOMED_UK_PREFERRED_Term	SNOMED_Fully Specified_Name
1325171000000109	Acute COVID-19 infection	Acute COVID-19 [ND] (disorder)
1325181000000106	Ongoing symptomatic COVID-19	Extended COVID-19 (up to 3/12)
1325161000000102	Post-COVID-19 syndrome	Prolonged COVID-19 syndrome (more than 3/12)

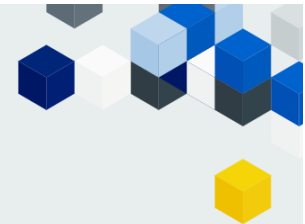


# ECDS uses - DARS

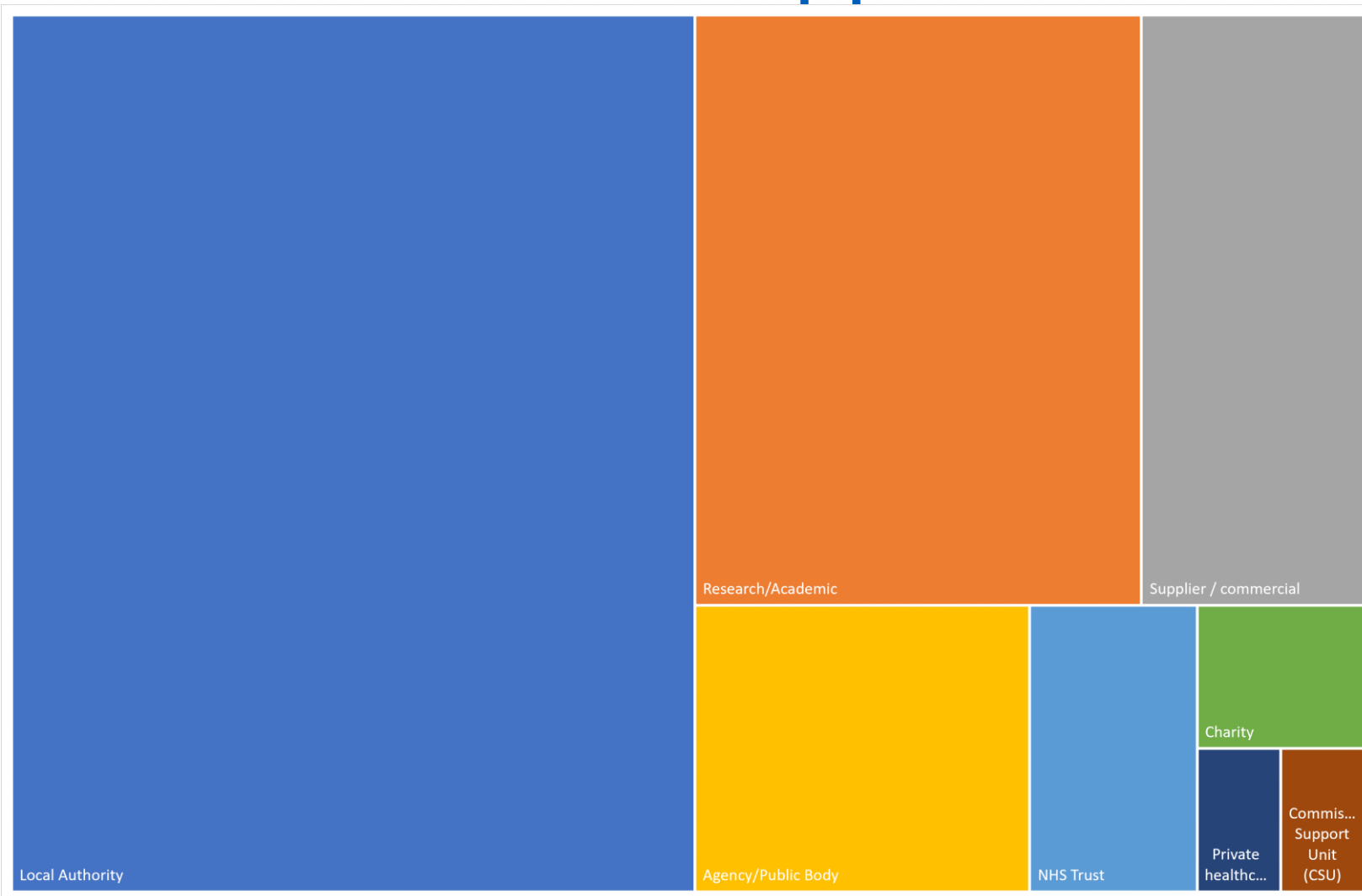
- Application for analysis via NHSD Data Access Request Service (DARS)
  - 1100 ECDS approvals from Dec 19 to Feb 2022
  - ~40 / month

## Data Access Request Service (DARS)

The Data Access Request Service (DARS) can offer clinicians, researchers and commissioners the data required to help improve NHS services.



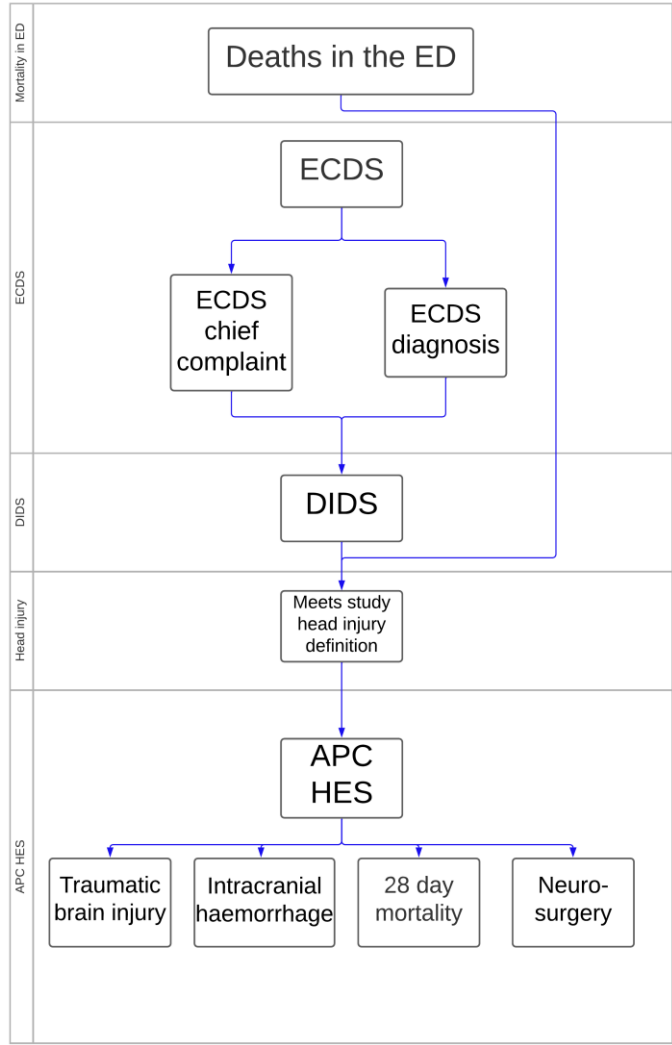
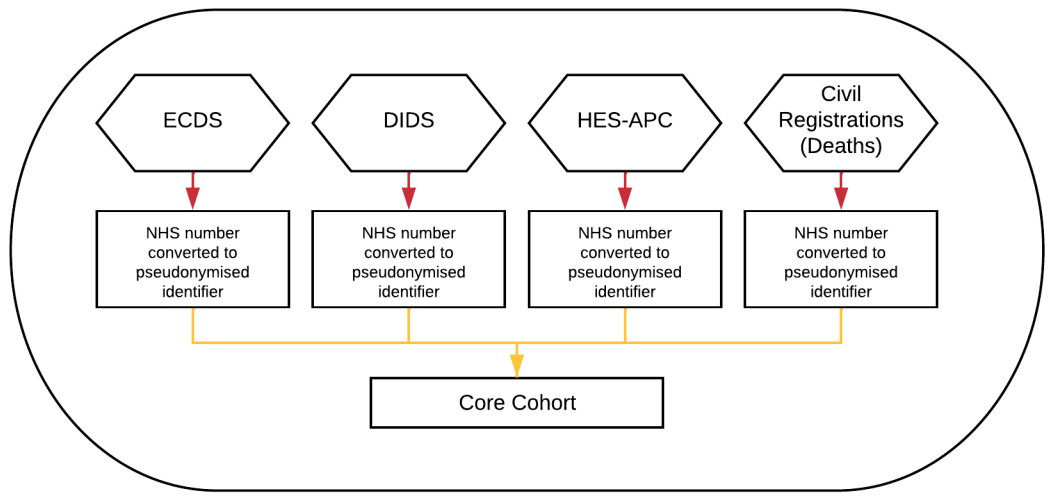
# ECDS uses – DARS applications



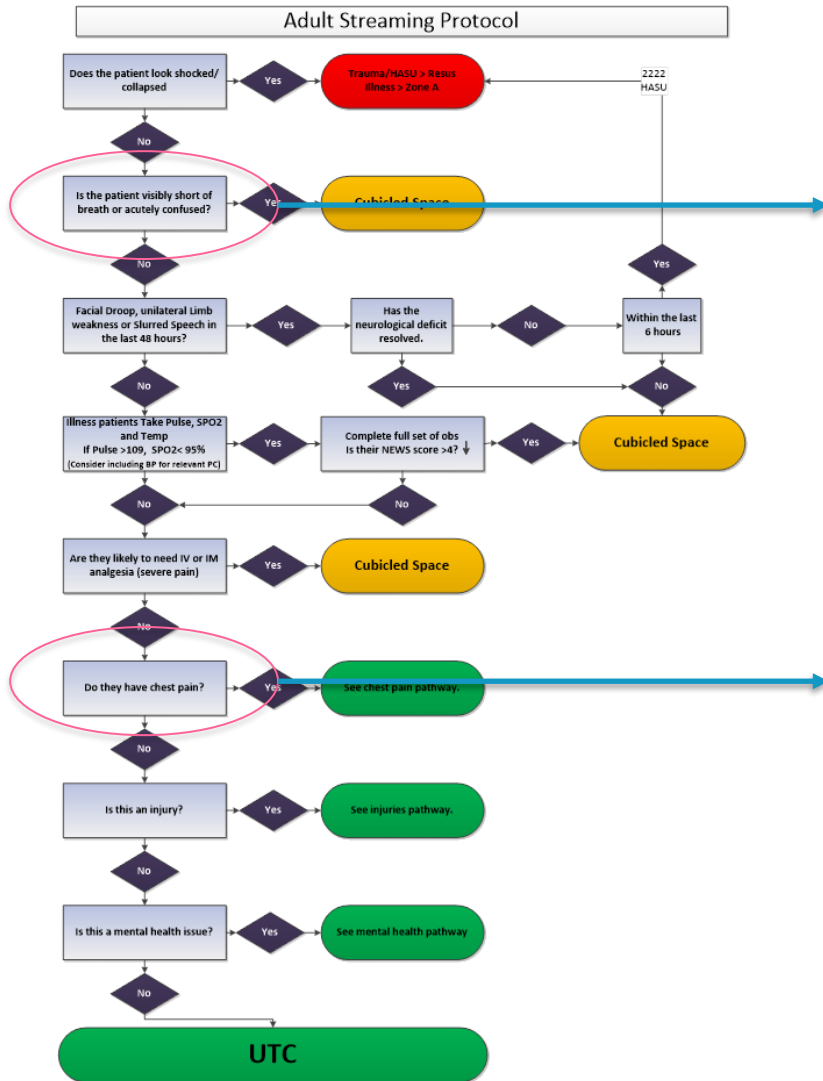
# ECDS uses – research

- Injury epidemiology
- Public health surveillance
- Chest pain / other symptomatic prognostication
- SARS-CoV-2 delta vs alpha ED attendance and hospital admission risk differential
- TBI





# ECDS uses - local



Is the patient visibly short of breath or acutely confused?

Do they have chest pain?





# ECDS uses - local

Study period	Sep 2019-Jan 2020	Jan-July 2021
ED attendance	80,538 (526/day)	47,002 (382/day)
Streamed to UTC	26,652 (33%)	19,451 (41%)
Returned from UTC	1783 (7%)	1067 (5%)
Admitted into hospital after return	198 (11% of returned, <1% of total)	50 (5% of returned, <1% of total)
28 day mortality (n)	2	2



# Summary

- Structure ECDS
  - ECDS in the UEC System
  - ECDS Max
  - ECDS uses
  - ECDS Max future work
- 
- Interested parties [ben.bloom@nhs.net](mailto:ben.bloom@nhs.net)



Thank you

Questions

