

Data Journey –

1. From ICD to SNOMKED
2. From Databases to Usage
3. Implication



1. From ICD to SNOMKED

ICD9  **ICD10**  **ICD11**

SNOMKED 

“Acidosis”
(code 276.2)

“Acidosis”
(code E87.2)

...

“Metabolic Acidosis”
(code 5945509)

“coded data is still a poor reflection of clinical practice, and that many clinicians remain uninterested”
- Audit Commission 2009.

- ☐ Classification entries vary between doctors
- ☐ Classification systems are updated periodically to accommodate new conditions



1. From ICD to SNOMKED

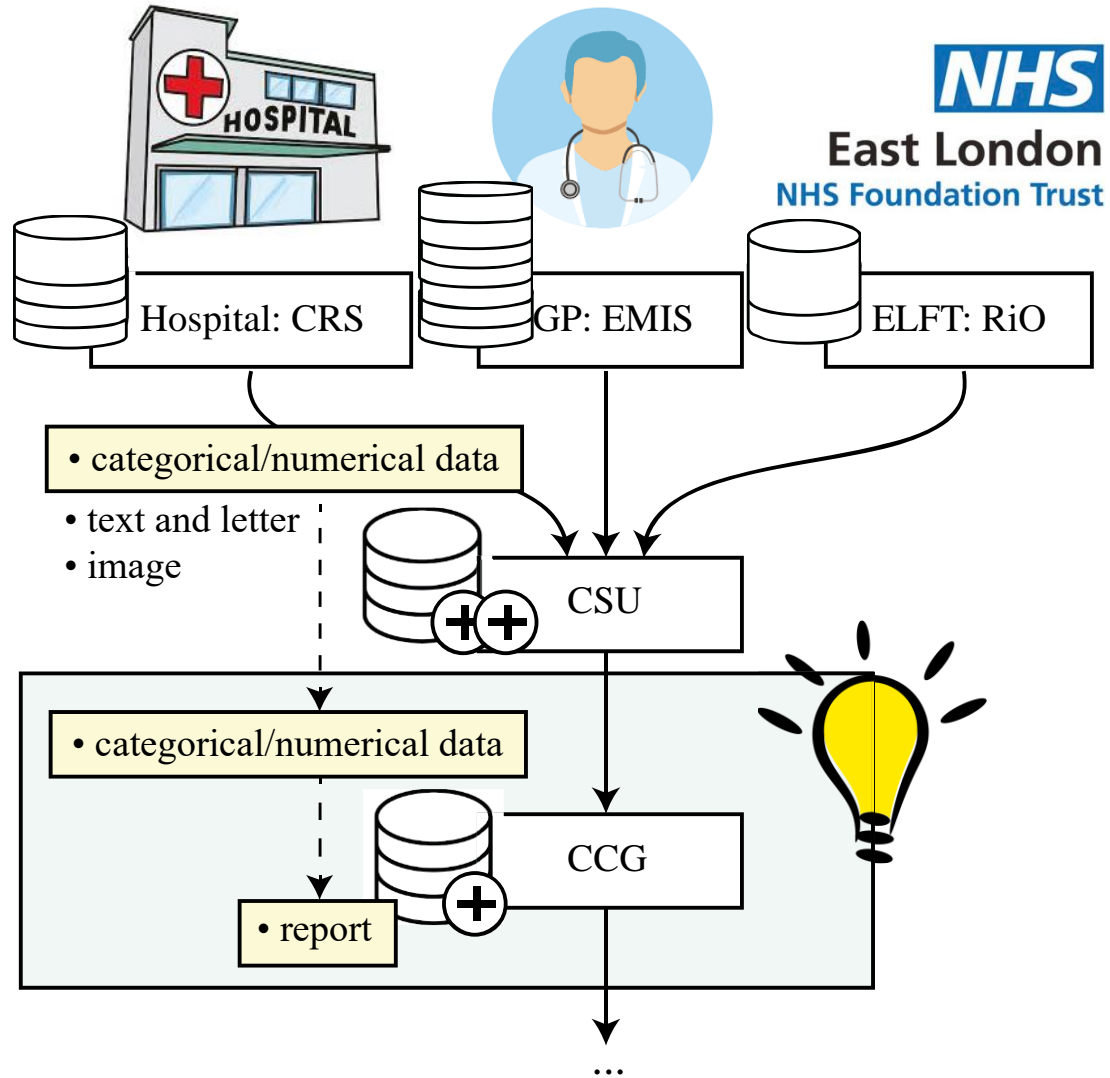
Results of the Audit Commission's 2009 national clinical coding audit in selected specialties in a large NHS Trust.

Area audited	Primary Diagnoses Incorrect (%)	Secondary Diagnoses* Incorrect (%)	Primary Procedures Incorrect (%)	Secondary Procedures Incorrect (%)
Theme – 110: Trauma & Orthopaedics	20	24.9	19.1	12.4
Speciality – 502: Gynaecology	8	19.7	12.4	12.5
HRG Chapter – L: Urinary Tract and Male Reproductive System	12.9	25.4	14.3	35.5
HRG – F36: Large Intestinal Disorders >69	3.3	28.3	27.3	7.1
Overall	12.7	24.4	15.9	15.3

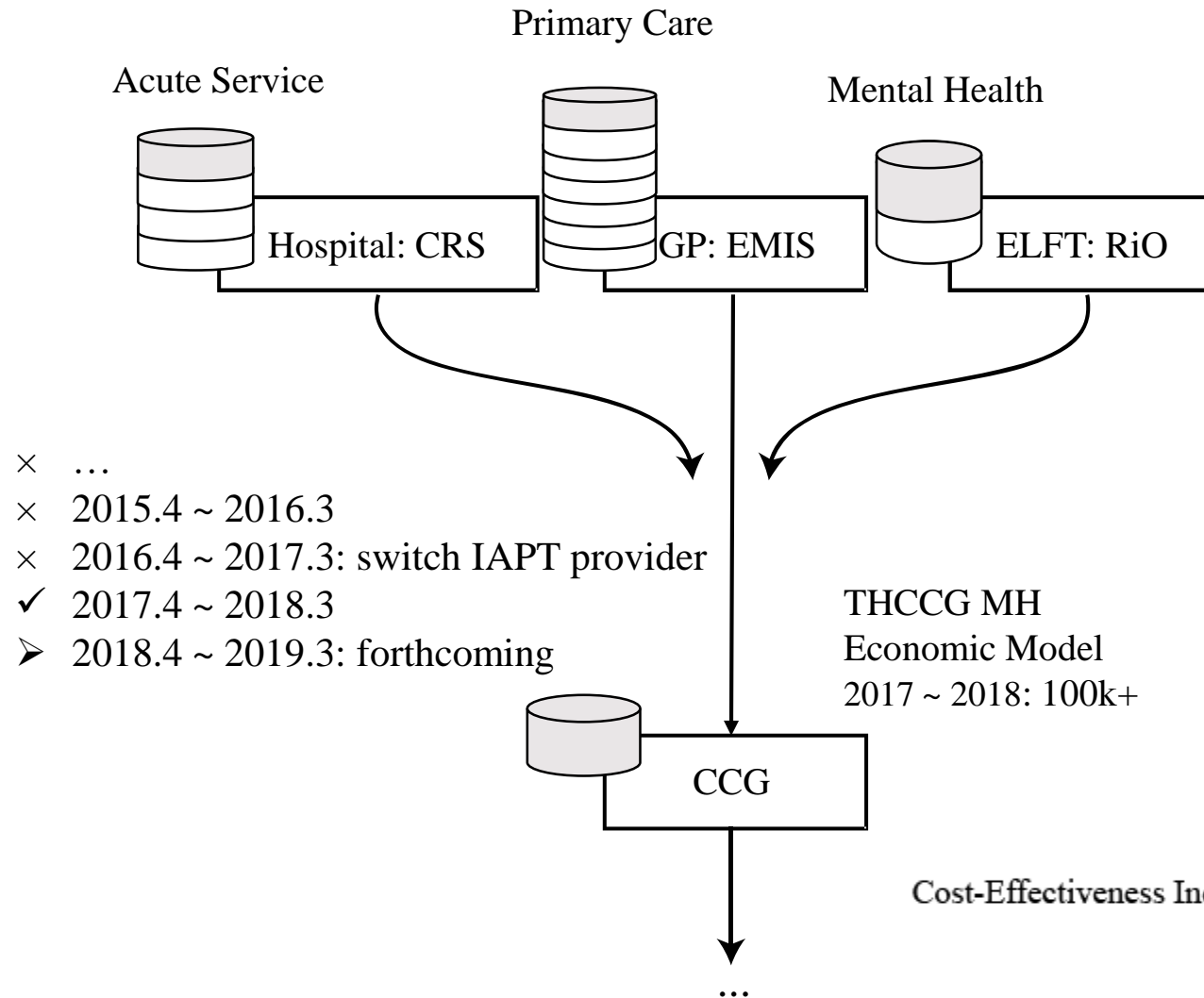
*Conditions that coexist at the time of admission, or develop subsequently, and that affect the patient care during the current episode



2. From Databases to Usage



2. From Databases to Usage



Example Usage

Predict individual patient MH spend and acute spend. This leads to a cost-effectiveness index.

For example: every £1 spend on patient group 1's mental health treatment can save £20 on the patient's acute spend

Cost-Effectiveness Index =

MH Spend with MH Treatment

Acute Spend with MH Treatment - Acute Spend without MH Treatment



2. From Databases to Usage

PatientID	Gender	Age	Ethnicity	IAPTActivity	ClusterCode	DiabeticFlag	COPDFlag	...	Anxiety	SMI	Personality disorder	...	MH Spend	AE Spend	...
1	M	23	White	0	99	1	1		1	1	0		20	70	
2	M	25	White	0	Null	0	1		0	0	0		0	700	
3	F	53	Chinese	1	Null	1	0		1	0	0		500	311	
4	F	41	White	0	5	0	0		0	0	1		10	132	
5	F	43	White	0	6	0	0		1	0	0		30	20	

100k+

Categorized
by every 5
years

• ClusterCode
Null → 0
• Has IAPT or
ClusterCode → 1

• 1, 2, ... → 1
• 5, 6, ... → 2
...
• 0, 99, null ... → 0

Counting

Counting

PatientID	Gender	AgeBand	Ethnicity	AccessMHC1718	SuperCluster	LTCGroup		MHCGroup					MH Spend	Acute Spend	...
1	M	20-25	White	1	0	2		2					20	70	
2	M	20-25	White	0	0	1		0					0	700	
3	F	50-55	Chinese	1	0	1		1					500	311	
4	F	40-45	White	1	2	0		1					10	132	
5	F	40-45	White	1	2	0		1					30	20	

100k+

Counting patient number having the same values

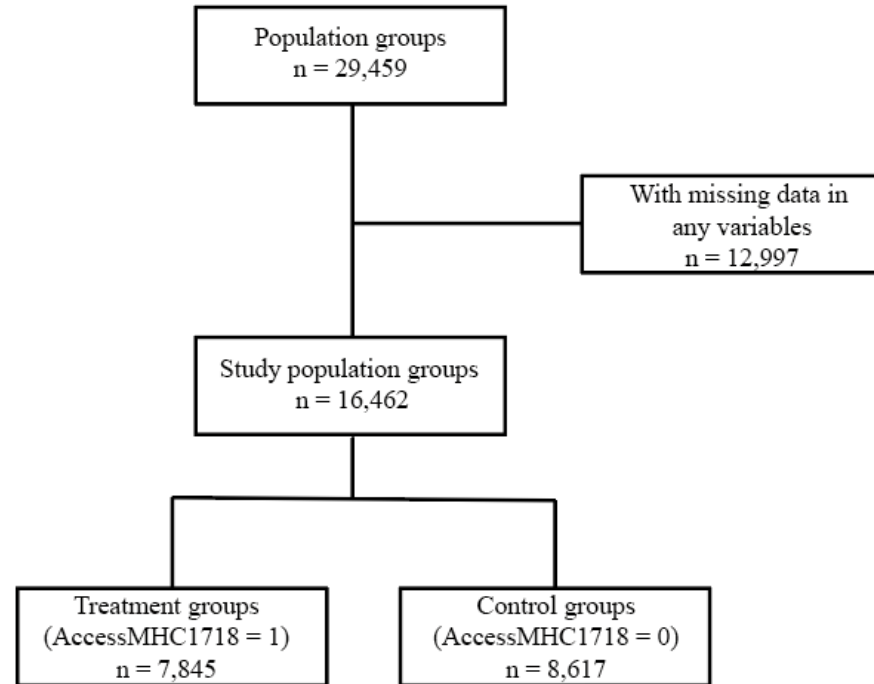
sum

PatientSK _PatientID	Gender	AgeBand	Ethnicity	AccessMHC1718	SuperCluster	LTCGroup		MHCGroup					MH Spend	Acute Spend	...
1	M	20-25	White	1	0	2		2					20	70	
1	M	20-25	White	0	0	1		0					0	700	
1	F	50-55	Chinese	1	0	1		1					500	311	
2	F	40-45	White	1	2	0		1					40	152	

29459



2. From Databases to Usage



Input

PatientSK	Gender	AgeBand	Ethnicity	AccessMHC1718	SuperCluster	LTCGroup		MHCGroup			...	MH Spend	Acute Spend	...
_PatientID														
1	M	20-25	White	1	0	2		2				20	70	
1	M	20-25	White	0	0	1		0				0	700	
1	F	50-55	Chinese	1	0	1		1				500	311	
2	F	40-45	White	1	2	0		1				40	152	



3. Implication

- ☐ Data quality (e.g. classification and the mapping of classification, event sequence)
- ☐ Information loss (e.g. images, notes)
- ☐ Data aggregation (e.g. grouping and counting)

