

Benefits of SNOMED CT from a clinical perspective; The Rotherham experience

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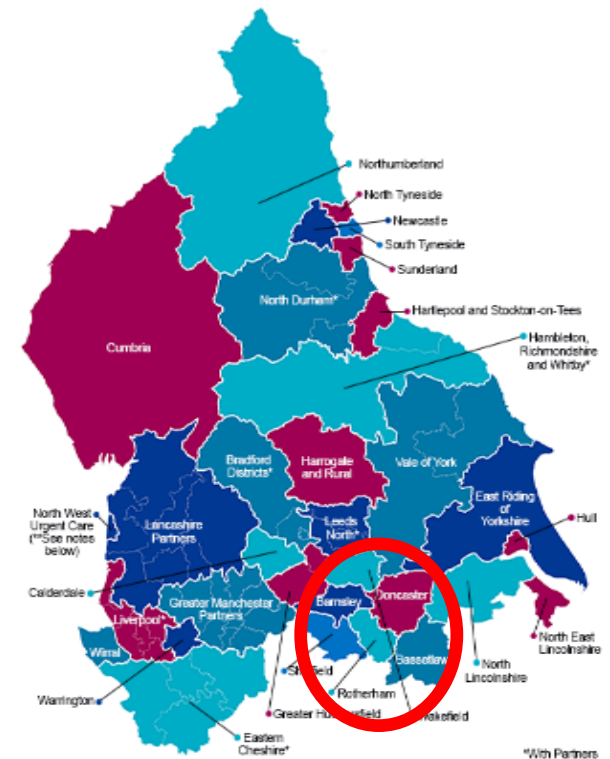
Agenda

This presentation will provide an honest account drawing on real life experience of how **using SNOMED CT** has impacted the Rotherham NHS Foundation Trust, over the past six years, offering insight on the processes and challenges as well as sharing lessons learned.

This session focuses on the clinical benefits of implementing SNOMED CT, gaining valuable insight from a trust that has already made the changeover. From practical necessities to wider service implications, these insights and 'top tips' will enable colleagues to accurately predict and overcome likely challenges.

Rotherham NHS FT - Health Informatics

- A fully co-terminus health and social care community with a population of c260,000
- ‘Medium’ District General Hospital and community services.
- Approx. 4,200 staff, £250M pa budget
- Rural with Industrial Centre
- Shared Health Informatics Service



The NHS digital strategic landscape

- The focus in digital planning has shifted from trusts to the local health community, Sustainability and Transformation Partnerships (STPs) leading to **Integrated Care Systems (ICS)**
- The national agenda has changed from technology to ‘digitisation’
- The Wachter Report to NHS England endorsed this and led to 12 Trusts being appointed ‘Global Digitisation Exemplars (GDEs)’ attracting matched funding up to £10m
- Trust-based systems are still critical in driving a paper-lite NHS agenda for the 2020’s
- There is an increased awareness of CyberSecurity threats to the NHS

Over the past 10 years the Trust has implemented and developed core mission-critical patient systems around Meditech (Acute) and SystemOne (Community). **TRFT has implemented SNOMED CT.**

The Trust has also developed a successful Rotherham-wide information sharing system in the **Rotherham Health Record**. There is now an NHS England Programme for Local Health Care Record Exemplars (LHCRES) building on best practice for System Interoperability.

The vision for Informatics is to be ‘digital by default’ and be a lead in providing integrated digital services for the Trust, supporting integrated care in the local health community and beyond.

Why SNOMED CT?

- Global scope – contribution, utility
- Wide range of disciplines and specialties
- Ever growing and improving
- Meaning representation means multiple purposes
- Breadth of functionality supported
- Mandatory as NHS Information Standard (in England). Implementation:
 - Primary Care from 2018
 - Secondary Care from 2020

What is so difficult?



The Hobbit – An Unexpected Journey
(J.R.R. Tolkien)

" "Good Morning!" said Bilbo, and he meant it. The sun was shining, and the grass was very green. But Gandalf looked at him from under long bushy eyebrows that stuck out further than the brim of his shady hat.

"What do you mean?" he said. "Do you wish me a good morning, or mean that it is a good morning whether I want it or not; or that you feel good this morning; or that it is a morning to be good on?"

"All of them at once," said Bilbo"

The Problem ... the Meaning

- Healthcare is complex and its language even more so and a simple solution just won't do it
- Representation of clinical information is complex – SNOMED CT is complex for this reason
- Words and phrases change meaning according to:
 - The context in which they are used
 - The place where they are used
 - The disciplines and specialities using them
 - The time when they are used.

Which cold do you mean?

- cold (ABC) cold sensation quality as in
 - “I feel cold when I’m outside in the snow”.
- cold (DEF) common cold
 - I feel awful, I have a cold.
- COLD (GHI) chronic obstructive lung disease
 - Mrs Smith has been suffering from cold for many years and is suffering from an acute exacerbation

Implementation – The Real Deal

- Implementing SNOMED CT: what is involved from a trust perspective? Where in the trust is SNOMED CT used and for what purposes? SNOMED CT challenges: which are inherent and which are part of implementation. Practical approaches: how much time, training and expertise is needed. What are the real costs?
- How SNOMED CT interacts with ICD-10 and OPCS 4.8 The process of mapping SNOMED CT to clinical coding systems. Compatibility challenges: what aspects are difficult to translate. Data quality: link between this and quality of data output and information reporting.
- Using SNOMED CT terminology: What is the terminology really like to use? How data is input including case study examples in practice. A look at various terms in SNOMED CT within the Electronic Health Record (EHR). How much of the terminology do staff really need to understand?

Clinical Ownership



Using SNOMED CT for procedure and diagnosis recording

The aim throughout has been for clinical ownership of the content in the patient record, and for that content to be of quality (completeness, level of detail and accuracy).

The rationale for requiring SNOMED CT, while accepting we would be an early adopter, was to implement the national objectives of collecting data once, at source, and facilitating other process from that data.

The data recorded should be to support clinical needs.

Use of SNOMED CT at Rotherham NHS FT

- The Rotherham NHS Foundation Trust (TRFT) has implemented the Meditech EPR system which utilises SNOMED CT in line with the directives of the Personalised Health and Care 2020 framework for action and the goals stated in the Local Digital Roadmap to support the health and care community in achieving the ambition of working “Paper Free at the Point of Care”.
- In addition to the strategic use of SNOMED CT, a key driving goal of the implementation was to improve the efficiency of recording patient episode information in ICD-10, for disease and OPCS-4x for procedures (classification terminologies) to support NHS reporting.
- The classification terminologies group together more detailed patient information which is then used for statistical and epidemiological analysis, reimbursement for care provided and planning of health and care services.
- SNOMED CT contains more detailed terms than the classification terminologies and is used by clinicians in an Electronic Patient Record System (EPR) to record, at the point of care, detailed information about a patient including but not limited to conditions, findings and procedures.

Benefits Realisation

There are several current benefits from utilising SNOMED CT at TRFT:

- Capturing point of care procedure and diagnosis codes
- Driving the classification coding of episodes of care
- Supporting the move towards a paperless system
- Ability to support reporting requirements utilising SNOMED CT such as national emergency care dataset reporting
- NHS Strategic alignment

There are however additional specific areas where the functionality of SNOMED CT can be leveraged within the trust to achieve additional benefits in the future:

- Clinical Decision support
- Monitoring adherence to standards and guidelines
- Auditing of care delivery
- Patient Cohort identification and case finding
- Analytics to support areas such as resource planning
- Transfer of Care – discharge and admittance
- Systems Interoperability

Scope Extension

The work to date has created a strong foundation from which to expand capabilities. An independent review was carried out in 2018 which gave a number of recommendations to enhance the implementation further.

There were other areas of terminology use which were outside of the scope of the report that would benefit from a review:

- Use of the NHS Dictionary of Medicines and Devices (NHS dm+d)
- Current use of laboratory codes for orders and results
- Expanded use of SNOMED CT outside of Procedures and Diagnoses
- Terminology use outside of the Meditech system
- Supporting for longitudinal rather than episodic patient records

Improved Data Entry and Clinical Recording

Using SNOMED CT data entry lists (subsets) has improved the speed of data entry, achieved standardisation of recording within the hospital; improved data quality and subsequent analysis.

Some clinical specialties have championed these benefits, obstetrics and gynaecology now have a number of front-end forms that saves time for data entry, as well as reports that enable them to undertake clinical research and audits.

Previously these were undertaken by clinicians trawling through notes to identify appropriate patients. These are used to better understand and design the service offered, as well as improve patient care.

Enter/Edit Patient Problems

New Edit Audit

Problem	Visit Related	Prim Prob	Status	Priority	Diagnosis Date
Abdominal pain	<input type="checkbox"/>		Acute		
Abdominal pain - cause unknown	<input type="checkbox"/>		Acute		
Asthma	<input type="checkbox"/>		Acute		
Diabetes mellitus without complication	<input type="checkbox"/>		Acute		

Standard Prior Problems

Search For

Snomed Lookup

Search asthm

Name
Millers' asthma
Feather asthma
Intrinsic asthma without status asthmaticus
Stripper's asthma
Asthma disturbing sleep
Asthma causing night waking
Asthma disturbs sleep weekly
Asthma disturbs sleep frequently
Printers' asthma
Asthma
Mixed asthma
Meat-wrappers' asthma
Brittle asthma
Red-cedar asthma
Childhood asthma
Late onset asthma
Extrinsic asthma with asthma attack
Hay fever with asthma
Intrinsic asthma with asthma attack
Aspirin-sensitive asthma with nasal polyps
Colophony asthma
Sulphite-induced asthma
Factitious asthma
Poisoning by herbal asthma mixture
Intrinsic asthma

Filter by Subset

Favourites

Words - Any Order

Starts With

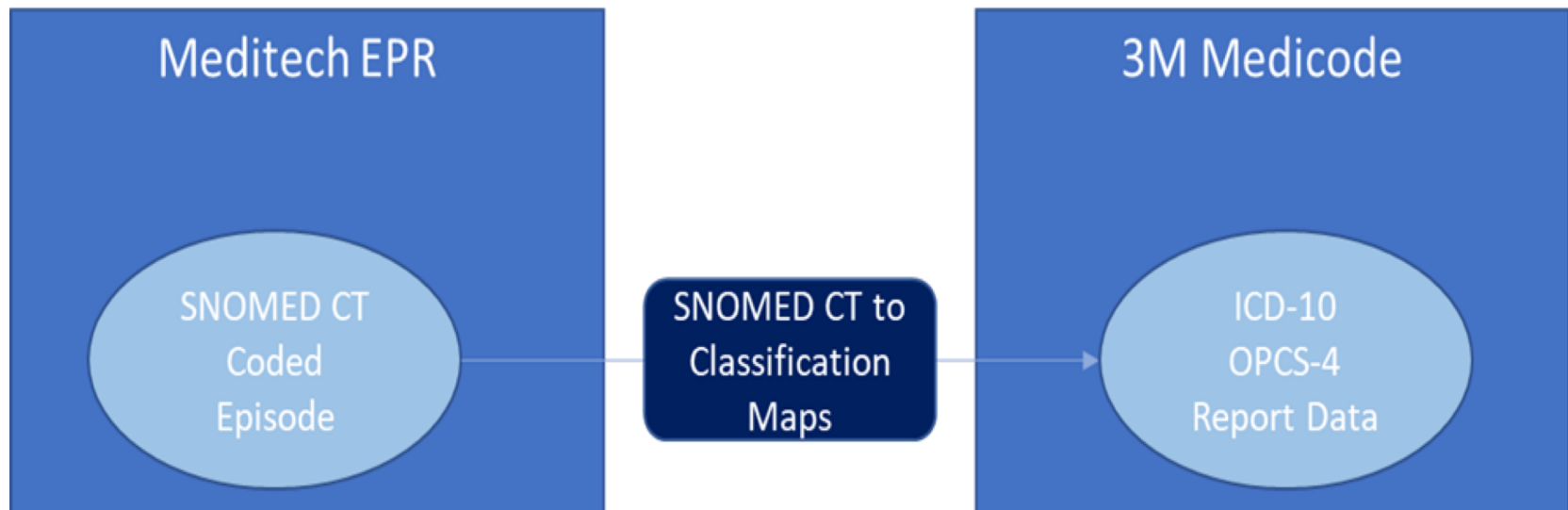
Prior Next Add to Favourites Hierarchical Display Cancel OK

Mapping

- As well as publishing SNOMED CT and the classification terminologies, there are mapping files from SNOMED CT to ICD-10 and SNOMED CT to OPCS-4 for the purpose of supporting the derivation of classification terms directly from the SNOMED CT concepts which have been recorded by the clinician in the EPR.
- These mapping files consist of a set of complex rules that often provides a single classification term for a given SNOMED CT term, but sometimes, according to the rules of the classifications systems, additional information is needed to identify the correct classification term which is not available in a single SNOMED CT term and therefore a choice of classification terms is sometimes presented requiring additional input to refine.
- It should be noted that not all SNOMED CT terms will have a map to the classification terminologies as they may be 'out of scope' of the intent and purpose of the classification terminologies. Where no map is available either the SNOMED CT Concept is not reportable or manual investigation by a specialist clinical coder would be required to review the patient episode to identify the correct classification term.

TRFT Strategic Approach

The strategy at RFT is to capture information in the EPR utilising SNOMED CT and to map to the classification terminologies using the 3M™ Medicode™ Clinical Classification Encoder to fulfil the patient episode reporting requirements. Understanding this strategy is key to understanding the Rotherham implementation approach.



Clinical Portal



Home Support Logged in as Monica Jones

Wards Overview and Selection

Acute Community Intermediate Care

Collapse this help column

Select a ward by clicking the ward name to view the ward beds and patients.

Collapse this column using the button above to show more columns.

If any of the details are not correct on the Ward view page, please contact the IT Service Desk with the correct details.

Ward Stats

Each ward has a series of statistics displayed to the right of the ward name. The icons used for the column headings can be hovered over for the wording. From left-to-right, these are:

- Total Beds
- Occupied Beds
- Empty/Ready Beds
- Empty/Not Ready Beds
- Outliers
- Long Stay Patients (7 days)
- Long Stay Patients (14 days)
- Frequently Readmitted Patients
- On Community Caseload
- Patient Birthdays

Some of the headings may be open to interpretation.

Home Reports Support

Emergency Department

Total attendees, breaches, and requests and outcomes are reset at midnight. This page was last updated at: 20th July 2017, 15:36:41

CURRENTLY AT ESCALATION LEVEL 2

27 IN NOW 147 IN TODAY

36mins TO BE TRIAGED (AVG) 1hr 13mins TO BE SEEN (AVG)

2 P1 4 P2 7 P3 5 P4 0 P5

Awaiting Triage

BREACHES 4HR TARGET RATE 98.6%

ADMISSIONS CONVERSION RATE 9.5%

2 TOTAL IN < 1 HOUR 14 ADMISSIONS 0 PENDING

AMBULANCES 31 TOTAL ARRIVALS

YAS LIVE FEED

0 INBOUND (P1) 2 INBOUND 0 ARRIVED 0 HANDOVER

CLINICAL DECISION UNIT 1 TOTAL PATIENTS

Currently at Escalation Level 2

Medicine	Im	Im	✓	X	⊖	⊕	⊘	⊙	⊚
Total	210	191	18	1	4	25	19	72	
Acute Medical Unit	34	28	0	-	-	-	-	2	0
A1	33	33	-	-	1	4	2	17	
A2	24	22	2	-	-	6	6	11	
A3	-	-	-	-	-	-	-	-	
A4	35	33	2	-	2	6	4	8	
A5	33	32	1	-	-	2	4	10	
A7	13	10	3	-	-	-	1	2	
Discharge Lounge (B10)	2	2	-	-	-	-	-	1	
Coronary Care Unit	8	6	2	-	-	1	-	2	
Stroke Unit	28	25	2	1	1	7	-	6	

Surgery	Im	Im	✓	X	⊖	⊕	⊘	⊙	⊚
Total	136	115	19	2	18	14	11	24	
Surgical Assessment Unit	12	8	4	-	3	-	-	-	
B04	33	28	6	2	2	6	6	6	
B05	21	21	-	-	5	3	3	6	
FitzeWilliam Orthopaedic Trauma	28	23	5	-	6	2	3	8	
Kapoor Orthopaedic	28	27	1	-	2	2	-	2	
Silwell	14	11	3	-	2	1	-	2	

ACTIVITY BY HOUR

Shows the number of attendees arriving by hour. Also includes the number of ambulances by hour, no. patients breached by hour and yesterday arrivals by hour.

PATIENTS BY LOCATION

- Blue
- Main Waiting
- Paed Waiting
- Paeds
- Red
- Resus

ADMISSIONS TO HOSPITAL

By Ward

- Acute Medical Unit
- Stroke Unit
- Surgical Assessment Unit

By Speciality

- General Medicine
- General Surgery

TODAY'S OUTCOMES

The percentages shown here only represent the distribution of the discharge outcomes and not the total number of attendees.

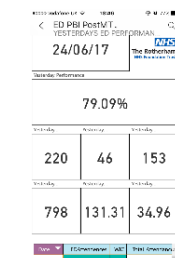
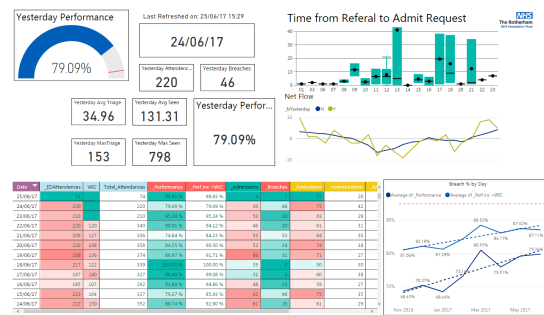
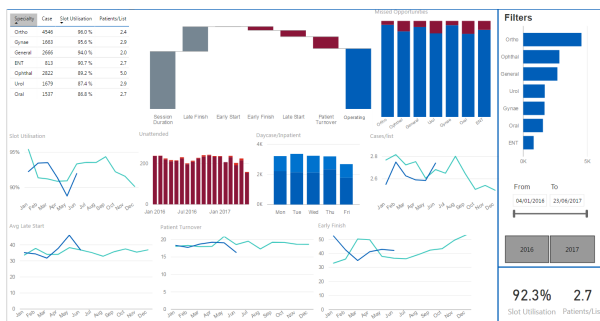
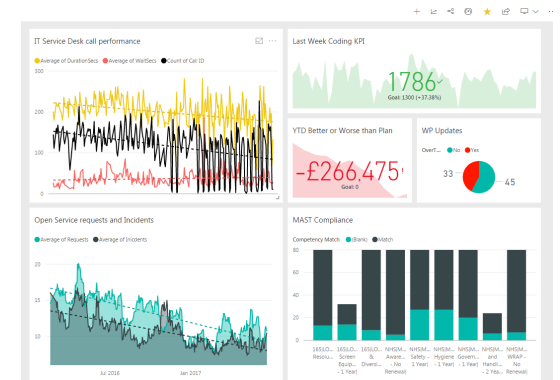
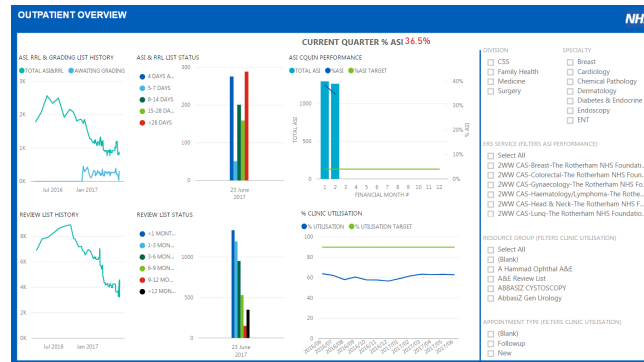
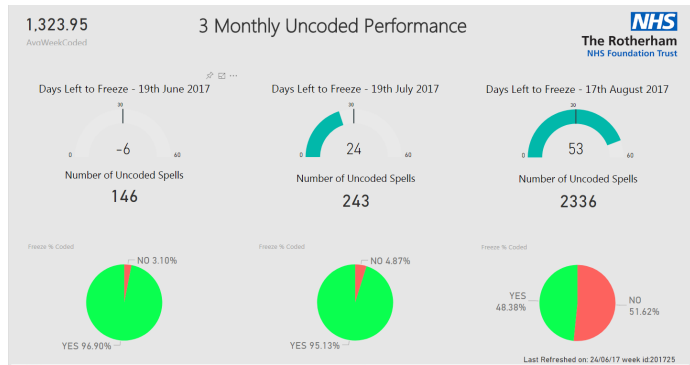
On Medical Advice Admitted to Hospital Transfer to other provider
 Refer to Fracture Clinic Did Not Wait Refer to Other Clinic
 Refer to A&E Clinic GP Follow-up

LIMB PROBLEMS

UNWELL ADULT
 ABDOMINAL PAIN IN ADULTS
 UNWELL CHILD
 SHORTNESS OF BREATH CHILDREN

SEPIA Portal (knowledge portal) can be used to visualise activity across Trust from waiting times to patient conditions. e.g. the chief complaint can be seen very quickly

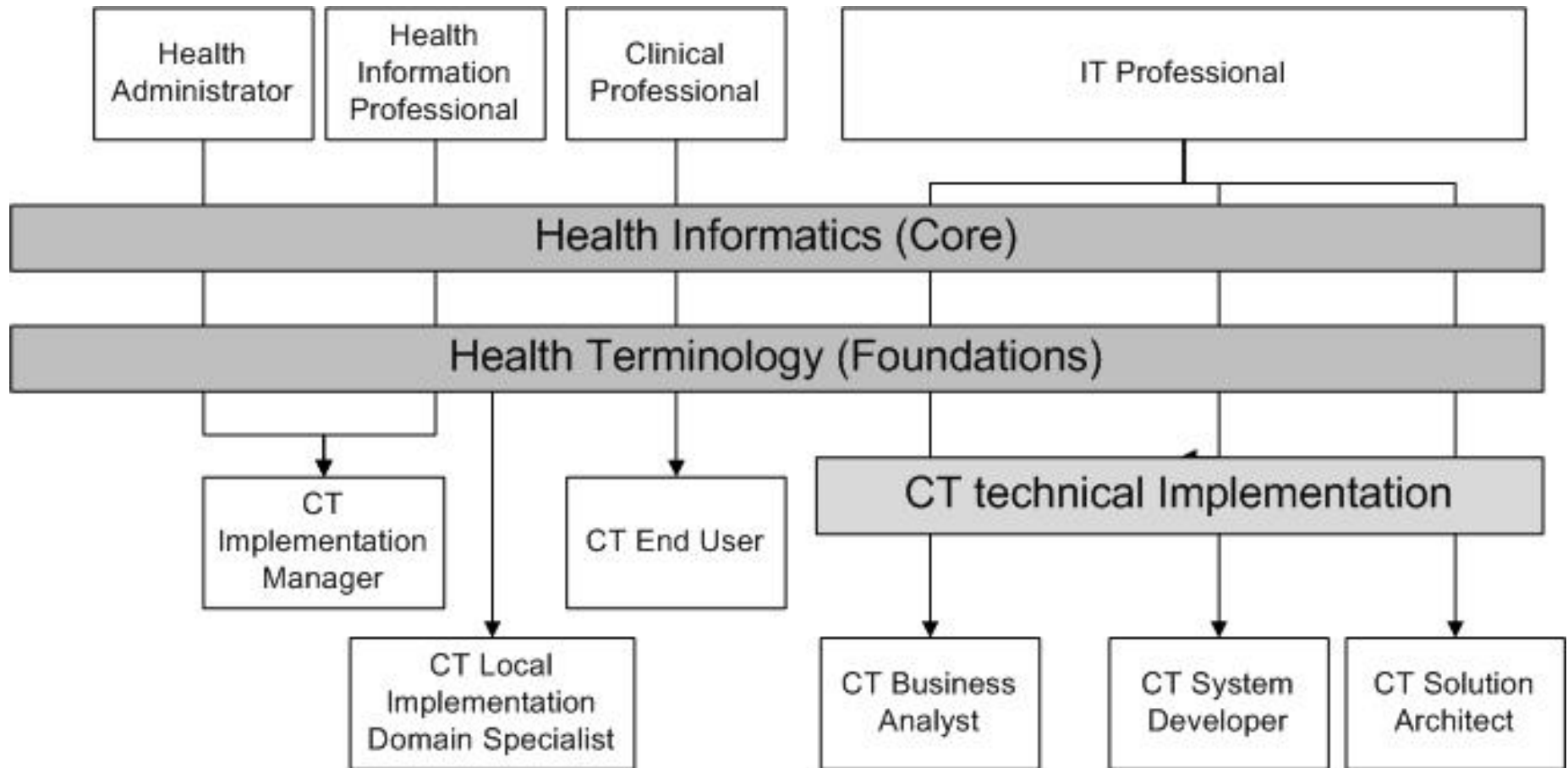
Our move from Information to Analytics to Insight



Skills Needed

- SNOMED CT Core +
 - SNOMED CT general principles
 - SNOMED CT structure and contents
 - Clinical users
 - Analysts and Developers
 - Application Specialists and Architects
 - SNOMED CT tools
 - SNOMED CT reference sets
 - The purpose
 - Understand the results of applying a reference set mechanism
 - Identify implementation issues related to reference set mechanisms
 - Clinical terminology map use

SNOMED CT Implementers



Benefits for the Patient

Improved visualisation of activity

Improved visibility of the clinical outpatient activity leads to much better patient care. The Trust cut outpatient waiting lists by 65% in some areas, as well as recorded a drop in the number of missed appointments (DNAs) per month

Discharge Summaries

Discharge summary is massively improved with a better level of information. This is beneficial to both GP's and patients.



Challenges and Lessons Learned

- Having SNOMED CT specialism within the Trust was essential and has enabled appropriate training and support. A mixture of face to face training, follow-up checks and work shadowing in the early phases of go-live was undertaken.
- Clinicians requested a smaller choice of SNOMED CT clinical terms in data entry lookup lists. A clinical lead from each speciality was needed to help determine the correct content that should be used.
- The SNOMED CT preferred term is displayed as the default display description as the system allows only one description to be used for each concept, however, the searching can be performed on all the SNOMED CT descriptions.
- Rotherham upgrade the system with the current SNOMED CT release on an annual basis. The time to upgrade does need to be factored into plans which involves checking for changes in subsets and favourite folders, this is considered essential and no different to any other data set change.

So ... is it worth it?

- To get the full benefit from an Electronic Patient Record the content must be recorded using a clinical terminology. It supports true digitisation.
- It is designed by clinicians for clinicians
- Safety case is supported by contextual information i.e. it is easier to understand unintended consequences
- Interoperability is better (and will get better with primary care using SNOMED CT)
- Implementing mandatory National Datasets is easier. ECDS was straightforward and TRFT was the first trust in England to send daily submissions. Met CQUIN target and additional early adopter bonus.



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