

Clinical analytics using SNOMED CT



Delivering

SNOMED CT

The global
language of
healthcare

Charles Gutteridge
Clinical Engagement Lead Europe

How humans think and laugh

Horse goes into a bar

Barman says:

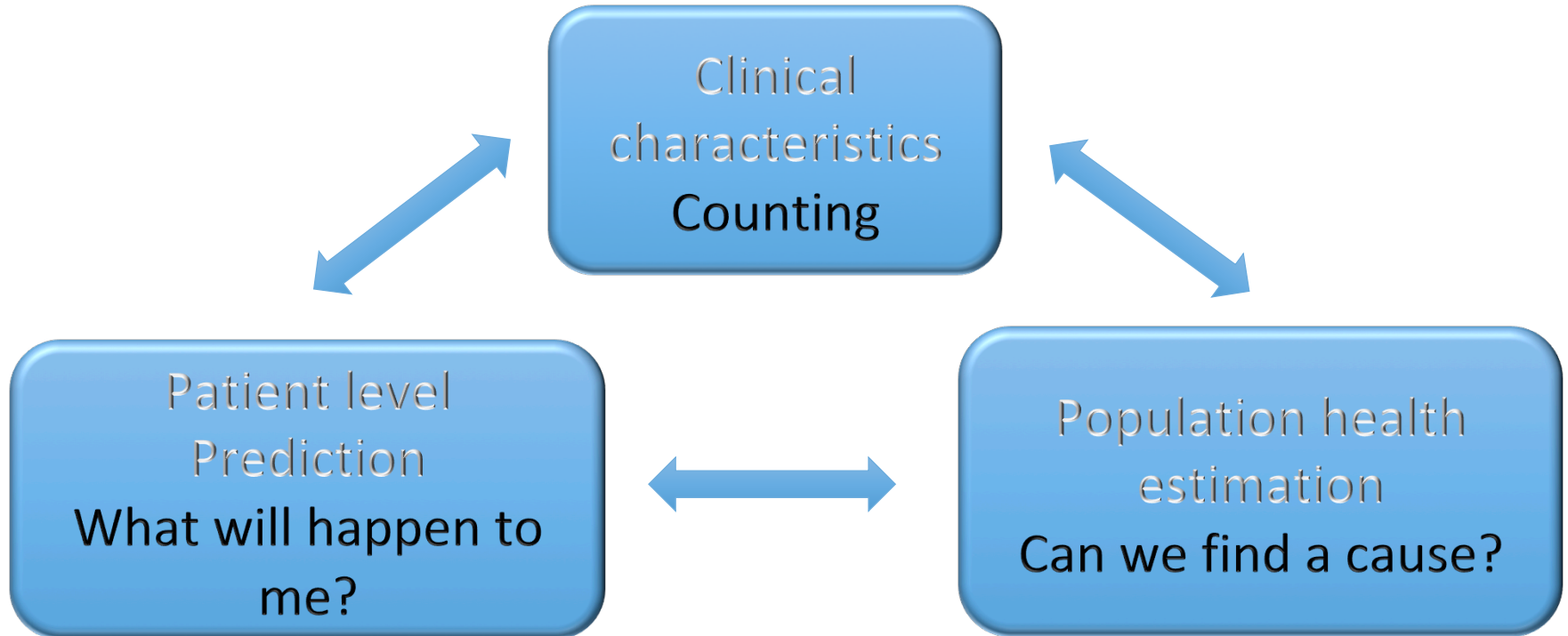
Why such a long face?

Are we natural
classifiers?



Why do we need standardised vocabularies?

Developing actionable insights







Giving meaning – semantic relationships




Rheumatoid arthritis

- Is a 'disease'
- Has a 'finding site'
- Has associated 'morphology'
- Has a 'pathological process'
- Joint structure
- Inflammation
- Autoimmune

SNOMED CT browser

Parents

- >  Arthritis (disorder)
- >  Autoimmune disease (disorder)

 **Rheumatoid arthritis (disorder)**  

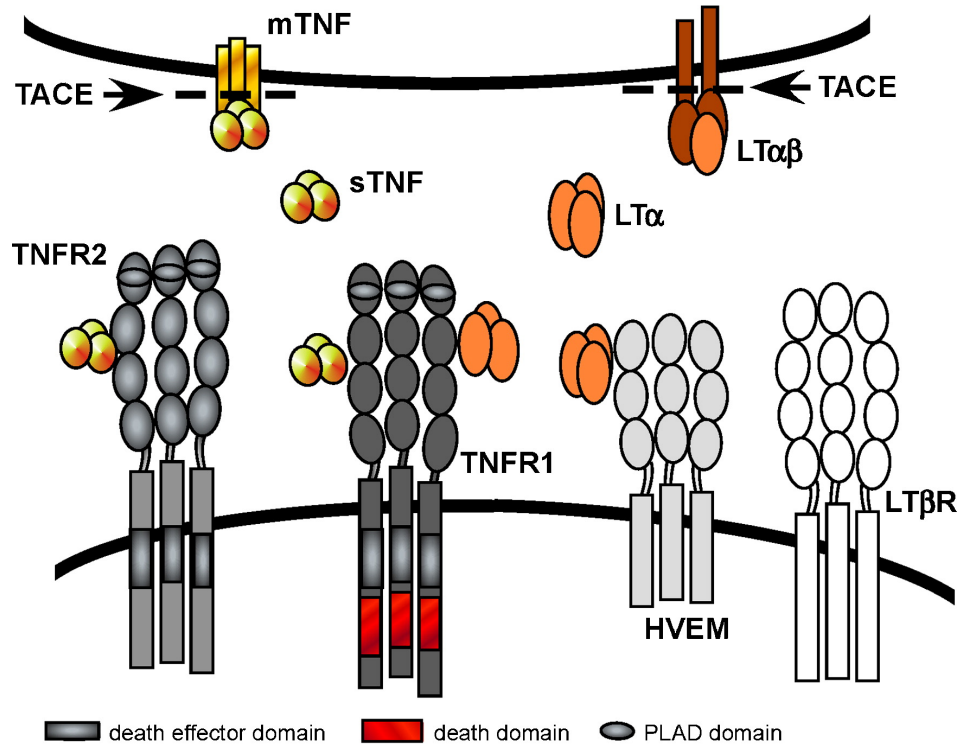
SCTID: 69896004

69896004 | Rheumatoid arthritis (disorder) |

en Chronic rheumatic arthritis
en Rheumatic gout
en Rheumatoid arthritis
en Rheumatoid disease
en RhA - Rheumatoid arthritis
en RA - Rheumatoid arthritis
en Atrophic arthritis
en Proliferative arthritis
en Rheumatoid arthritis (disorder)

Pathological process →
Autoimmune process
Finding site → Joint structure
Associated morphology →
Rheumatic inflammation

Tumour necrosis factor biology





What is RA?

How is RA managed?

Who can help me?

[Treatment](#)

[Medication](#)

DMARDs

[Biologics and Biosimilars](#)

[Biologics](#)

'My Story
Animation'

[Anti-TNF \$\alpha\$
Treatment in
Rheumatoid
Arthritis](#)

Etanercept
(Enbrel)

Adalimumab
(Humira)

Infliximab -
Frequently Asked
Questions

Cimzia
(certolizumab

Anti-TNF α Treatment in Rheumatoid Arthritis

What is TNF α ?

Tumour necrosis factor alpha or TNF α is a cytokine. Cytokines are substances released by the body during inflammation. Inflammation is a normal process generated by the body to fight against harmful bacteria and viruses. Normally, this inflammation is controlled and regulated. In rheumatoid arthritis this process breaks down, therefore the joints of patients with rheumatoid arthritis become inflamed. An excessive amount of TNF α is present in the blood and joints of patients with rheumatoid arthritis. Research has shown that excessive production of TNF α can lead to inflammation and damage to joints. TNF α is a particularly powerful cytokine because it causes the release of other cytokines from the body (such as IL1 and IL6). Blocking TNF α can reduce inflammation and joint damage.

Currently, there are five licenced treatments, etanercept (Enbrel), infliximab (Remicade), adalimumab (Humira), certolizumab pegol (Cimzia) and golimumab (Simponi) that can block the effect of TNF α .

NICE Guidelines



Mechanism of action of TNF inhibitors

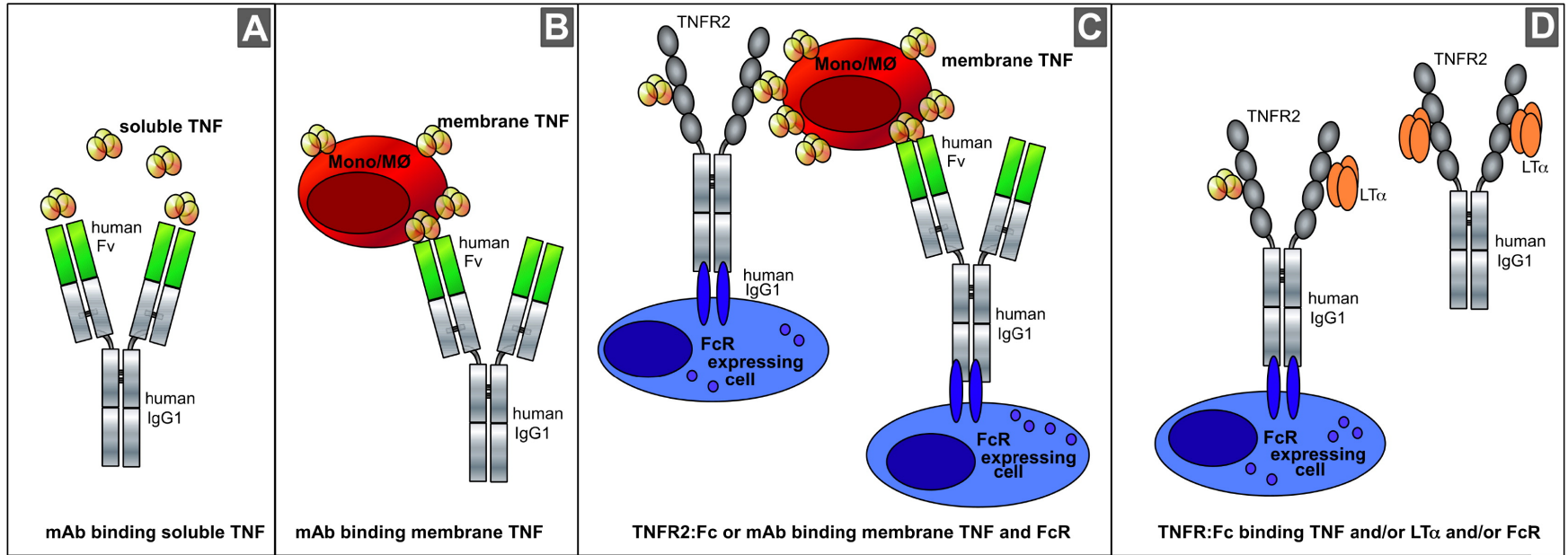
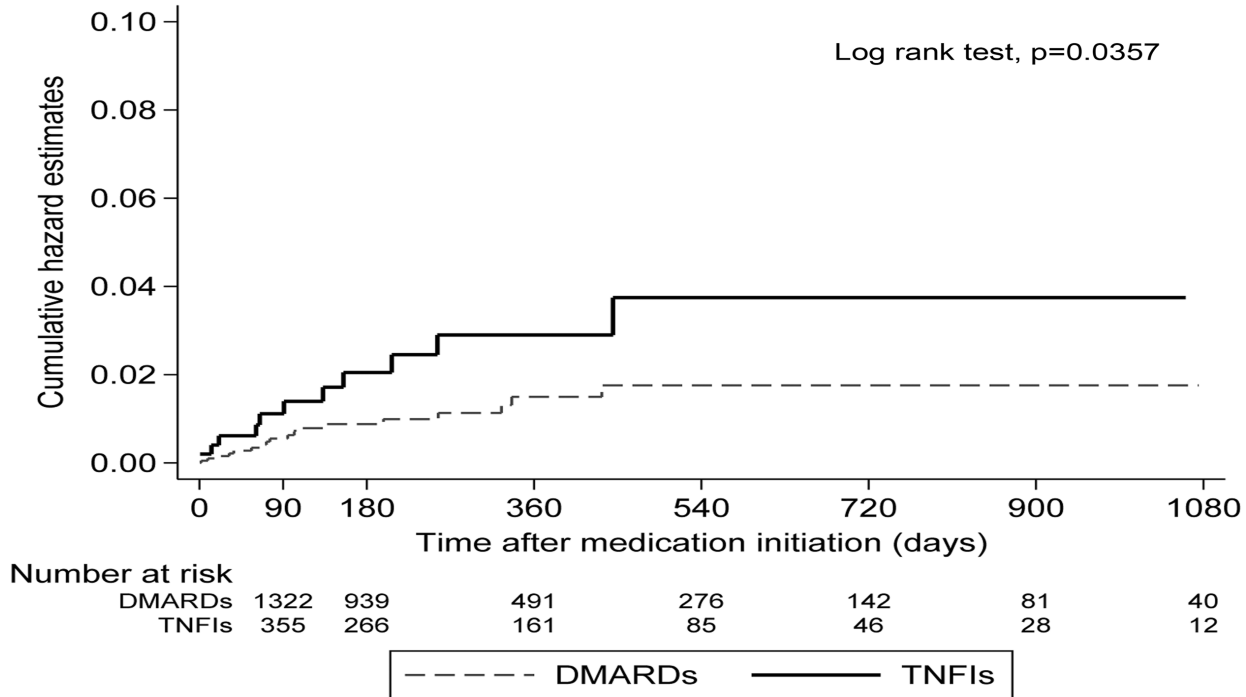


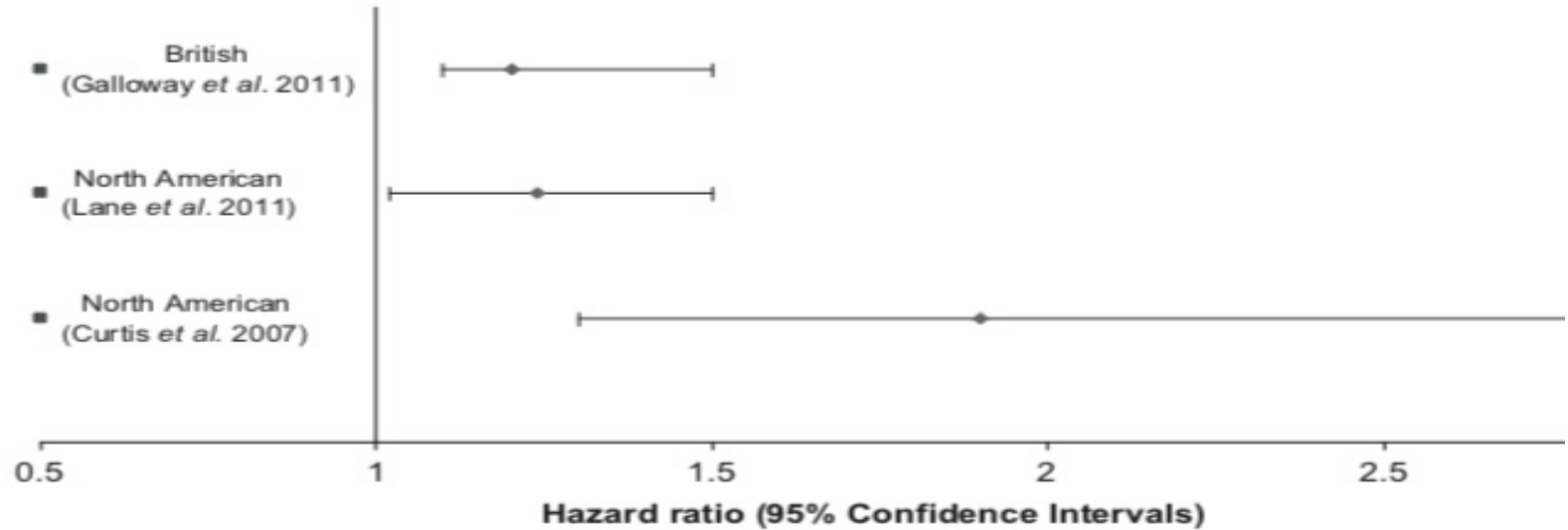


Fig. 2 Three-year cumulative hazards of serious infections in children with JIA



Hazard ratios after administration of anti-TNF inhibitors

International comparison



Forest plot of hazard ratios of serious infections from national registries.

Chronic obstructive pulmonary disease

13645005

Clinical decision making

Actionable insights

What will happen to me?

Can we find a cause?

Information model

- Electronic health record
- Problem listing
 - SNOMED CT
- e-Prescribing
 - SNOMED CT
- Data service running on the structured data

Cohort analysis

- Find all cases
- Find related conditions
- Find co-morbidities
- Find all similar treatments

Using relationships demonstration

- Using a synthetic dataset
- Limited set of relationships, attributes and targets
- Tool programmed for demonstration purposes by SNOMED CT development team