

Anatomical navigation to coded terms

Dr Andrew Sharp

General Practitioner UK

Medical Director Visual Read Medical Software

andrew.sharp@visualread.com



Finding coded medical concepts

Why?

- Information systems must use coded concepts
- To send into clinical records
- For links to education – for doctor and patient
- To trigger decision support tools

‘... the one remaining problem is the efficient capture of physician information in a coded form. Research is still needed to solve this last problem.’

CJ Macdonald

The barriers to electronic medical record systems and how to overcome them.

Ann Intern Med 1997 Oct 15;127(8 Pt 2):675-82

Finding coded medical concepts

How?

- Templates

History

Oral steroids used since last appointment

Peak flow meter at home

Exercise

[No Term Selected]

Asthma never restricts exercise

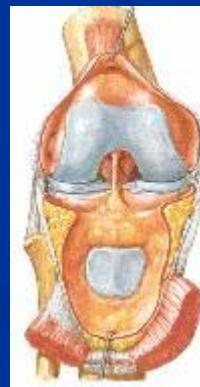
Asthma sometimes restricts exercise

Asthma severely restricts exercise

- Text searches

Find:

- Visual navigation



Finding coded medical concepts

Some problems

- Keyboard text search - problems when very large dictionary of concepts
- Can result in long lists and complex hierarchies
- Need to filter extensively

Foot joint active^S
Foot joint - cool^P
Foot joint - blue^P
Foot joint - cold^P
Foot implantation^P
Foot joint stable^P
Foot manipulation^P
Foot pulses absent^P
Foot joint finding^P
Foot joint implant^P
Footwear too tight^P
Footwear too loose^P
Footwear too short^P
Footwear too small^S
Footwear too heavy^P
Footwear provision^S
Footwear too narrow^P
Foot joint effusion^P
Foot joint inflamed^P
Foot joint crepitus^P
Foot joint - tender^P
Foot care assistant^S
Foot care education^P
Foot arch exercises^P
Foot reconstruction^P
Foot process fusion^P
foot/second squared^S

Browse

- ↓ Autoimmune endocrine disease
- ↓ Congenital anomaly of endocrine gland
- Disease of adrenal gland
 - ↓ Abnormality of cortisol-binding globulin
 - Adrenal atrophy
 - Adrenal calcification
 - Adrenal gland cytomegaly
 - ↓ Adrenal haemorrhage
 - ↓ Adrenal hemorrhage
 - ↓ Adrenal hyperfunction
 - ↓ Adrenal hypertrophy or hyperplasia
 - Adrenal infarction
 - ↓ Adrenal mass
 - Adrenal necrosis
 - ↓ Adrenogenital disorder
 - Aldosterone disorder
 - ↓ Aldosterone deficiency
 - Aldosteronism
 - Aldosteronism with nodular hyperplasia of adrenal cortex
 - Glucocorticoid-suppressible hyperaldosteronism
 - Primary aldosteronism
 - Aldosteronism due to neoplasm of the adrenal cortex
 - Glucocorticoid-responsive primary aldosteronism
 - Idiopathic aldosteronism
 - Primary hyperaldosteronism due to adrenal adenoma
 - Primary hyperaldosteronism due to hyperplasia

Text – which is the right search term?

- Vigilius Haufniensis
- Johannes Climacus
- Johannes de Silentio
- Frater Tactiturnus
- Soren Kierkegaard
- Or



Text – which is the right search term?

- OA right hip
- Osteoarthritis Rt Hip
- Hip osteoarthrosis - right
- Right hip osteoarthritis
- Rt Hip OA
- Osteoarthrosis right hip

Visual Navigation using Anatomy

- Clinicians are all trained in anatomy – so understand the navigation method
- Anatomy is constant (over non-evolutionary time scales!) so navigation method stays constant
- Image/word association is usually easy
- Rapid filtering of concepts because very granular classification

The Anatomical Interface...

Frank Netter MD

Copyright Icon Learning Systems



The demonstration Graphical Code Browser



In summary visual navigation is ..

- Intuitive for clinically trained personnel
- Fast – in tests it is up to 6 times faster than keyboard search to coded terms for inputting comprehensive clinical records
- Non-prescriptive – clinician decides how much or little to use it
- Comprehensive
- Keyboard free
- An additional method
- Fun!