



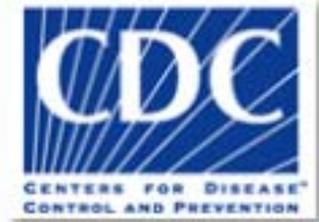
A Knowledgebase to Support Notifiable Disease Surveillance

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Background



- Began later half of 2003
- Scope: reportable conditions at state and national level
- Review of state web sites regarding reportable conditions
- Use of formal ontology & knowledgebase editing tools - Protege



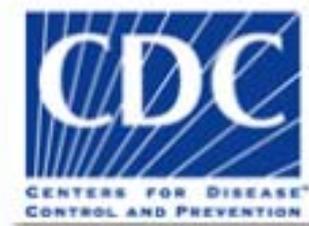
Knowledgebase Content



- Hierarchical list of diseases
- Mappings to ICD, SNOMED disorder codes
- Associated infectious agents, substances, vectors
- Jurisdictions reportable in
- Case definition text
- Associated LOINC coded lab tests
- SNOMED symptoms & findings



Protégé



- JAVA open source software
- Developed by Stanford Medical Informatics (SMI)
<http://protege.stanford.edu/index.html>
- Knowledgebase can be stored as CLIPS (C Language Integrated Production System) or XML files
- Query language is JESS (JAVA Expert System Shell) Language





Demonstration



- Knowledgebase (KB) standard queries
- KB structure and content
- Custom JESS queries
- Message interface demo



notifiablediseasev3_8 Protégé-2000 (L:\protege_ontology_development\program files\notifiablediseasev3_8.pprj)

Project Window Help

Classes Slots Forms Instances Queries Classes & Instances

Relationship Superclass

- SYSTEM-CLASS
- Disease A
 - Infectious disease
 - Bacterial infectious disease
 - Fungal infectious disease
 - Parasitic infectious disease
 - Prion disease
 - Viral infectious disease
 - clinical syndrome due to infectious causes classifie
 - infection as complication of medical care
 - non-human infectious disorder
 - congenital infectious disease M
 - adverse reaction to vaccine
 - complication related to pregnancy
 - congenital disease
 - developmental disorder
 - disease by body site
 - hearing disorder
 - hereditary disease
 - injury
 - neoplastic disease
 - nutritional disorder
 - occupational disorder
 - perinatal disorder
 - poisoning
 - self-induced disease
 - sequela of disorder
 - sudden infant death syndrome
- Infectious agent
- substance
- Vector A
- BT Syndrome
- Jurisdiction A
- Value A
- Terminologies A

Bacterial infectious disease (type=Infectious_disease_metaclass, name=bacterial_infectious_... C X)

Display Name: Bacterial infectious disease

Synonym: [Empty]

Nationally Notifiable

NND Start Year 1: [Empty] NND End Year 1: [Empty]

NND Start Year 2: [Empty] NND End Year 2: [Empty]

ICD9 Code: [Empty] Snomed Disorder Code: bacterial infectious disease

ICD10 Code: A49

UMLS CUI: C0004623

DXplainID: [Empty]



Next steps



- Further develop web interface
- Additional data entry
- Editing and validation of content by subject matter experts and state surveillance partners
- Test inference capabilities



Acknowledgements



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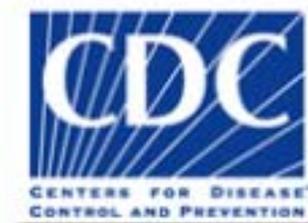
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Questions?

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