Global City Indicators Healthcare Ontology

IRI:

http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl

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Imported Ontologies:

http://ontology.eil.utoronto.ca/GCI/Foundation/GCI-Foundation-v2.owl (visualise it with LODE)

http://www.w3.org/2002/07/owl (visualise it with LODE)

http://ontology.eil.utoronto.ca/GCI/Education/GCI-Education.owl (visualise it with LODE)

http://ontology.eil.utoronto.ca/icontact.owl (visualise it with LODE)

http://xmlns.com/foaf/0.1/ (visualise it with LODE)

http://bioontology.org/ontologies/BiomedicalResources.owl (visualise it with LODE)

Other visualisation:

Ontology source

Table of Content

Introduction

The Healthcare Ontology has been developed by the Enterprise Integration Lab at the University of Toronto

The Health Ontology is defined in the paper: Falodi, J., Fox, M.S., (2018), "A Healthcare Ontology for Global City Indicators (ISO37120)", Working Paper, Enterprise Integration Lab, Mechanical & Industrial Engineering, University of Toronto.

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Classes

action   alive status   city population   day care bed   dead infant pop size
dead infant population   document   healthcare association   hospital
hospital bed   hospital staff bed   hospital ward   in patient bed
inpatient hospital bed pop size   license holder   life expectancy value   m h p pop
m h p pop size   medical organization   mental health professional   midwife
midwifery license   numberof hospital beds population   nurse   nurse midwife pop
nurse midwife pop size   nursing license   outpatient bed
patient family member bed   physician   physician population
physician population size   pre anaesthesia bed   private hospital
professional healthcare provider   public hospital   resident   situation   suicide
under 5 pop size   under 5 population

action^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#Action

has super-classes

> g c i health thing^C
> committed by^{op} **only** person^C
> occured in^{op} **only** city
> reported by^{op} **only** organization

alive status^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#Alive_Status

has super-classes

> g c i health thing^C
> defined by **only** person

city population^C

IRI: http://ontology.eil.utoronto.ca/GCI/Innovation/GCI-Innovation.owl#CityPopulation

The 'CityPopulation' is defined by a city and the definition of a resident. Note that in the definition of an ISO 37120 indicator the definition of a resident is generic. A City should provide a more specific definition that uniquely identifies residents of their city, using the resident ontology. Similarly, the numerator's size is defined as the cardinality of a

population which is, in turn, defined by a city and the service user.

has super-classes
population
defined by **only** resident^C

day care bed^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#DayCare_Bed

has super-classes
hospital bed^C

dead infant pop size^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#Dead_Infant_Pop_Size

has super-classes
population size

dead infant population^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#Dead_Infant_Population

has super-classes
quantity
defined by **only** person

document^C

IRI: http://xmlns.com/foaf/spec/Document

has super-classes
is validated by^{op} **exactly** 1 government organization

healthcare association^C

IRI: http://bioontology.org/ontologies/BiomedicalResources.owl#HealthcareAssociation

has super-classes
organization
is in range of

hospital^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#Hospital

has super-classes
> medical organization^C

has sub-classes
> private hospital^C, public hospital^C

is in domain of
> contains^{op}

hospital bed^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#HospitalBed

has super-classes
> material resource

has sub-classes
> day care bed^C, hospital staff bed^C, in patient bed^C, outpatient bed^C, patient family member bed^C, pre anaesthesia bed^C

is in domain of
> located in^{op}

hospital staff bed^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#HospitalStaff_Bed

has super-classes
> hospital bed^C

hospital ward^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#Hospital_Ward

has super-classes
> division

is in range of
> contains^{op}, located in^{op}

in patient bed^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#InPatient_Bed

has super-classes
> hospital bed^C

inpatient hospital bed pop size^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#Inpatient_Hospital_Bed_Pop_Size

has super-classes
> population size
> g c i health thing^C
> for city **only** city

The population of hospital beds

license holder^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#LicenseHolder

has super-classes
> organization agent

is in domain of
> is issued to^{op}

life expectancy value^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#Life_Expectancy_Value

has super-classes
> g c i health thing^C

is in domain of
> l e unit^{op}

m h p pop^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#MHP_Pop

has super-classes
> quantity
> defined by **only** [mental health professional](#)[C]

m h p pop size[C]

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#MHP_Pop_Size

has super-classes
> population size

medical organization[C]

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#MedicalOrganization

has super-classes
> organization

has sub-classes
> [hospital](#)[C]

mental health professional[C]

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#MentalHealthProfessional

has super-classes
> [professional healthcare provider](#)[C]

midwife[C]

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#Midwife

has super-classes
> [professional healthcare provider](#)[C]

midwifery license[C]

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#MidwiferyLicense

has super-classes
> license

numberof hospital beds population^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#NumberofHospitalBedsPopulation

has super-classes
quantity
defined by **some** hospital bed^C

nurse^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#Nurse

has super-classes
professional healthcare provider^C

nurse midwife pop^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#Nurse_Midwife_Pop

has super-classes
quantity
defined by **only** professional healthcare provider^C

nurse midwife pop size^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#Nurse_Midwife_Pop_Size

has super-classes
population size

nursing license^C

IRI: http://bioontology.org/ontologies/BiomedicalResources.owl#NursingLicense

has super-classes
license
is in domain of
is valid for^{op}, issued by^{op}

outpatient bed^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#Outpatient_Bed

has super-classes

hospital bed^C

patient family member bed^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#PatientFamilyMemberBed

has super-classes

hospital bed^C

physician^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#Physician

has super-classes

professional healthcare provider^C

physician population^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#Physician_Population

has super-classes

quantity
defined by **only** physician^C
for city **only** city

physician population size^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#Physician_Population_Size

has super-classes

population size

pre anaesthesia bed^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#PreAnaesthesia_Bed

has super-classes

hospital bed^C

---

private hospital^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#PrivateHospital

has super-classes

hospital^C

---

professional healthcare provider^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#ProfessionalHealthcareProvider

has super-classes

organization agent

has licensure^{op} **only** license

has sub-classes

mental health professional^C, midwife^C, nurse^C, physician^C

is in domain of

earns^{op}

---

public hospital^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#PublicHospital

has super-classes

hospital^C

---

resident^C

IRI: http://ontology.eil.utoronto.ca/GCI/Innovation/GCI-Innovation.owl#Resident

has super-classes

g c i health thing^C

---

situation^C

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#Situation

has super-classes
    g c i health thing^c

has sub-classes
    suicide^c

suicide^c

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#Suicide

has super-classes
    situation^c

under 5 pop size^c

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#Under_5_Pop_Size

has super-classes
    population size
    defined by **only** person

under 5 population^c

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#Under_5_Population

has super-classes
    quantity

Object Properties

city currently residing in   committed by   contains   earns   for address   for year
has building class   has proof   has use   holds   is alive   is issued by
is issued to   is used by   is valid for   is validated by   issued by   l e unit
located in   occured in   practicing in   reported by   reside in   resident of

city currently residing in^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#CityCurrentlyResidingIn

has super-properties

residency object property^{op}

has range

city currently residing in^{op} **exactly** 1 city

is also defined as

data property

committed by^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#committedBy

has super-properties

health object property^{op}

contains^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#contains

has domain

hospital^c

has range

hospital ward^c

earns^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#earns

has domain

professional healthcare provider^c

has range

education degree

for address^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#forAddress

has super-properties

residency object property^{op}

for year^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#forYear

has domain
　　placement
has range
　　for year^{op} **exactly** 1 date time interval

has building class^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#hasBuildingClass

has super-properties
　　residency object property^{op}

has proof^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#hasProof

has super-properties
　　residency object property^{op}

has use^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#hasUse

has super-properties
　　residency object property^{op}

holds^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#holds

has domain
　　holds^{op} **some** license holder^c
has range
　　is issued to^{op} **min** 1 license

is alive^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#is_Alive

has domain
　　is alive^{op} **some** person

has range

    is alive^{op} **only** alive status^C

---

is issued by^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#is_issued_by

has super-properties

    residency object property^{op}

---

is issued to^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#isIssuedTo

has domain

    license holder^C

has range

    holds^{op} **exactly** 1 license

---

is used by^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#is_used_by

has super-properties

    residency object property^{op}

---

is valid for^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#isValidFor

has domain

    nursing license^C

has range

    is valid for^{op} **some** date time interval

---

is validated by^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#is_validated_by

has super-properties

    residency object property^{op}

issued by^{op}

IRI: http://bioontology.org/ontologies/BiomedicalResources.owl#issued_By

has domain
> nursing license^c

has range
> healthcare association^c

l e unit^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#LE_Unit

has domain
> life expectancy value^c

has range
> singular unit

located in^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#locatedIn

has domain
> hospital bed^c

has range
> hospital ward^c

occured in^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#occuredIn

has super-properties
> health object property^{op}

practicing in^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#practicing_in

has super-properties
> health object property^{op}

reported by^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#reportedBy

has super-properties
> health object property^{op}

reside in^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#reside_in

has super-properties
> residency object property^{op}

resident of^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#residentOf

has super-properties
> residency object property^{op}

has range
> city

Data Properties

certification date^{dp}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#certification_Date

has super-properties
> residency data property^{dp}

has sub-properties
> expiry date^{dp}

has range
> date time

city currently residing in^{op}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#CityCurrentlyResidingIn

has range
 string
is also defined as
 object property

expiry date^{dp}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#expiry_Date

has super-properties
 certification date^{dp}
has range
 date time

service consumption data property^{dp}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#ServiceConsumptionDataProperty

has super-properties
 top data property
has sub-properties
 type^{dp}

type^{dp}

IRI: http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#type

has super-properties
 service consumption data property^{dp}
has range
 string

Annotation Properties

description issued license qualified cardinality

description^{ap}

IRI: http://purl.org/dc/elements/1.1/description

issued^{ap}

IRI: http://purl.org/dc/elements/1.1/issued

license^{ap}

IRI: http://creativecommons.org/ns#license

qualified cardinality^{ap}

IRI: http://www.w3.org/2002/07/owl#qualifiedCardinality

Namespace Declarations

default namespace
>   http://ontology.eil.utoronto.ca/GCI/Health/GCI-Health.owl#

07
>   http://www.w3.org/2002/07/

adms
>   http://www.w3.org/ns/adms#

biomedicalresourceontology-owl
>   http://bioontology.org/ontologies/BiomedicalResourceOntology.owl#

biomedicalresources-owl
>   http://bioontology.org/ontologies/BiomedicalResources.owl#

biositemap
>   http://bioontology.org/ontologies/biositemap.owl#

cc
>   http://creativecommons.org/ns#

contact
>   http://www.w3.org/2000/10/swap/pim/contact#

data-view
>   http://www.w3.org/2003/g/data-view#

dc
>   http://purl.org/dc/elements/1.1/

education

http://ontology.eil.utoronto.ca/GCI/Education/

foaf

http://xmlns.com/foaf/0.1/

foundation

http://ontology.eil.utoronto.ca/GCI/Foundation/

gci

http://ontology.eil.utoronto.ca/GCI/Foundation/GCI-Foundation-v2.owl#

gci-education-owl

http://ontology.eil.utoronto.ca/GCI/Education/GCI-Education.owl#

gci-innovation-owl

http://ontology.eil.utoronto.ca/GCI/Innovation/GCI-Innovation.owl#

gd

http://linkedgeodata.org/ontology/

geo

http://geonames.org/ontology/ontology_v3.1.rdf#

gs

http://ontology.eil.utoronto.ca/govstat.owl#

health

http://ontology.eil.utoronto.ca/GCI/Health/

ic

http://ontology.eil.utoronto.ca/icontact.owl#

iso37120

http://ontology.eil.utoronto.ca/GCI/ISO37120.owl#

isoi

http://ontology.eil.utoronto.ca/GCI/ISO37120/Innovation.owl#

kp

http://ontology.eil.utoronto.ca/trust.owl#

om

http://www.wurvoc.org/vocabularies/om-1.8/

om-1-6

http://www.wurvoc.org/vocabularies/om-1.6/

ontologies

http://bioontology.org/ontologies/

ontology-eil-utoronto-ca

http://ontology.eil.utoronto.ca/

org

http://ontology.eil.utoronto.ca/organization.owl#

ot

http://www.w3.org/2006/time#

owl

http://www.w3.org/2002/07/owl#

pr

http://www.w3.org/ns/prov#

prov-links
http://www.w3.org/ns/prov-links-20130430#

rdf
http://www.w3.org/1999/02/22-rdf-syntax-ns#

rdfs
http://www.w3.org/2000/01/rdf-schema#

sc
http://schema.org/docs/schemaorg.owl#

schema-org
http://schema.org/

service
http://purl.org/ontology/service#

skos
http://www.w3.org/2004/02/skos/core#

spec
http://xmlns.com/foaf/spec/

sumo
http://ontologyportal.org/sumo.owl#

sws
http://sws.geonames.org

terms
http://purl.org/dc/terms/

vann
http://purl.org/vocab/vann/

voaf
http://purl.org/vocommons/voag#

vs
http://www.w3.org/2003/06/sw-vocab-status/ns#

wot
http://xmlns.com/wot/0.1/

xsd
http://www.w3.org/2001/XMLSchema#