

## CLASS HIERARCHY

### owl:Thing

- BodyPart
  - BloodVessel
  - Bone
  - InternalOrgan
  - Joint
  - Nerve
  - Skin
  - Tissue
    - Ligament
    - Muscle
    - SubcutaneousTissue
    - Tendon
- Contaminant
  - Bacterial
    - Debris
    - Dirt
  - NonBacterial
    - Clostridium
    - Staphylococcus
    - Streptococcus
- Injury
  - Bite
    - HumanBite
    - AnimalBite
  - CarAccident
  - Complication
    - Hemorrhage
    - Infection
      - Cellulitis
      - Gas gangrene
      - Sepsis
      - Staphylococcus infection
      - Streptococcus infection
      - Tetanus
    - Scarring
      - KeloidScar
  - Crushing
  - DirectBlow
  - Fall
  - SharpObjectInjury

- MedicalSupply
  - Antiseptic
  - Bandage
  - Gauze
  - Scalpel
  - Staple
  - Suture
- Symptom
  - Bleeding
  - Fever
  - Pain
  - Pus
  - Redness
  - Swelling
- Treatment
  - FirstAid
    - Bandaging
    - Cleaning
    - DirectPressure
    - Elevation
    - Rest
  - MedicalTreatment
    - Debridement
    - SkinGlue
    - Stapling
    - Surgery
    - Suturing
  - Medication
    - Antibiotic
    - PainRelief
    - TetanusShot
- Wound
  - ClosedWound
    - Contusion
    - Fracture
    - Hematoma
  - OpenWound
    - Abrasion
    - Avulsion
    - ChronicWound
      - Sore
      - Ulcer
      - Laceration
      - Puncture

- SurgicalWound
  - Class\_I\_Clean
  - Class\_II\_CleanContaminated
  - Class\_III\_Contaminated
  - Class\_IV\_DirtyContaminated

## OBJECT PROPERTIES

- hasLocation  
Domain: Injury/Wound  
Range: BodyPart
- requiredTreatment  
Domain: Injury/Wound  
Range: Treatment
- usesMedicalSupply  
Domain: Treatment  
Range: MedicalSupply
- hasSymptom  
Domain: Injury/Wound  
Range: Symptom
- contaminatedBy  
Domain: Wound  
Range: Contaminant
- causedBy  
Domain: Injury  
Range: Source (e.g., SharpObject)

## DATA PROPERTIES

hasDepth : decimal

severityLevel : string

isInfected : boolean

needsStitches : boolean

isContaminated : boolean

isPainful : boolean

## AXIOMS AND CONSTRAINTS

OpenWound is disjoint from ClosedWound

Symptom is doing from Treatment

Bacterial is disjoint from NonBacterial

hasDepth has a property of OpenWound

Treatment, Contaminant, BodyPart, Symptom are disjoint with each other

Medication, MedicalTreatment, FirstAid are disjoint from each other

## DL QUERIES TO DEFEND

1. Wound and (hasLocation value skin\_forearm01) and ((usesMedicalSupply some Gauze)  
or (requiredTreatment some (usesMedicalSupply some Gauze)))
  
2. OpenWound  
and  
( (isInfected value true)  
or  
(contaminatedBy some Bacterial)  
)  
and (requiredTreatment some (usesMedicalSupply some MedicalSupply))