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)

- ● PerformedOn
  Domain: Treatment
  Range: Wounds or Injury

DATA PROPERTIES

hasDepth : decimal

hasDescription : string

hasDuration: string

hasHealingTime : integer

hasRiskLevel : String

isBite: boolean

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 otehr

Medication, MedicalTreatment, FirstAid are disjoin 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))