| **实体类型** | **中文含义** | **举例** |
| --- | --- | --- |
| Department | 科室 | 消化内科;呼吸内科 |
| Disease | 疾病 | 血栓闭塞性脉管炎;胸降主动脉动脉瘤 |
| Disease\_alias | 疾病别名 |  |
| Symptom | 疾病症状 | 乳腺组织肥厚;脑实质深部出血 |
| Complication | 疾病并发症 |  |
| Drug | 药品 | 京万红痔疮膏;布林佐胺滴眼液 |
| Check | 诊断检查项目 | 支气管造影;关节镜检查 |
| Operation | 手术 | [激光心肌血管重建](http://jbk.39.net/shoushu/jgxjxgzjs/);[血液透析用血管插](http://jbk.39.net/shoushu/xytxyzxgcg/) |
| Pathogenic\_Site | 发病部位 |  |

**疾病（Disease）**

| **属性类型** | **中文含义** | **举例** |
| --- | --- | --- |
| name | 疾病名称 | 喘息样支气管炎 |
| desc | 疾病简介 | 又称哮喘性支气管炎... |
| cause | 疾病病因 | 常见的有合胞病毒等... |
| prevent | 预防措施 | 注意家族与患儿自身过敏史... |
| cure\_way | 治疗方式 | "药物治疗","支持性治疗" |
| easy\_get | 疾病易感人群 | 无特定的人群 |

**知识图谱关系类型**

| **属性类型** | **中文含义** | **举例** |
| --- | --- | --- |
| belongs\_to | 属于 | <妇科,属于,妇产科> |
| Alias | 疾病别名 |  |
| common\_drug | 疾病常用药品 | <阳强,常用,甲磺酸酚妥拉明分散片> |
| need\_check | 疾病所需检查 | <单侧肺气肿,所需检查,支气管造影> |
| recommend\_surgery | 疾病推荐手术 |  |
| has\_symptom | 疾病症状 | <早期乳腺癌,疾病症状,乳腺组织肥厚> |
| acompany\_symptom | 疾病并发症 | <下肢交通静脉瓣膜关闭不全,并发疾病,血栓闭塞性脉管炎> |
| Common\_disease\_site | 常见患病部位 |  |

Name-疾病名称

medical\_insurance-是否医保,

infectivity-传染性,

therapy-治疗方法,

cure\_rate,- 治愈率

treatment\_cycle, -治疗周期

throng-多发人群,

cost,- 治疗费用

online\_to\_buy\_medicine-在线购药

, , , , , , ,

// 将illness\_name.csv 导入

LOAD CSV WITH HEADERS FROM "file:///illness\_name.csv" AS line

CREATE (p:Disease{name:line.name,medical\_insurance:line.medical\_insurance,infectivity:line.infectivity,therapy:line.therapy,cure\_rate:line.cure\_rate,treatment\_cycle:line.treatment\_cycle,throng:line.throng,cost:line.cost,online\_to\_buy\_medicine:line.online\_to\_buy\_medicine})

// 创建索引

CREATE CONSTRAINT ON (c:Disease)

ASSERT c.name IS UNIQUE

Treatment\_of\_department\_name.csv 导入科室实体文件

LOAD CSV WITH HEADERS FROM "file:///Treatment\_of\_department\_name.csv" AS line

merge (p:Department{name:line.Treatment\_of\_department\_name})

//添加索引

CREATE CONSTRAINT ON (p:Department)

ASSERT p.name IS UNIQUE

//导入Disease和Department之间的关系

LOAD CSV WITH HEADERS FROM "file:///illness\_Treatment\_of\_department.csv" AS line

MATCH (entity1:Disease{name:line.illness\_name}),(entity2:Department{name:line.Department\_name})

CREATE (entity1)-[r:BELONGS\_TO{type:line.Treatment\_of\_department}]->(entity2)

RETURN r

another\_names.csv 导入疾病别名实体文件

LOAD CSV WITH HEADERS FROM "file:///another\_names.csv" AS line

MERGE (p:Disease {name:line.another\_names})

//添加索引

CREATE CONSTRAINT ON (p:Disease)

ASSERT p.name IS UNIQUE

//导入病名实体和病名别名实体之间的关系

LOAD CSV WITH HEADERS FROM "file:///illness\_another\_names.csv" AS line

MATCH (entity1:Disease{name:line.illness\_name}),(entity2:Disease{name:line.illness2\_name})

CREATE (entity1)-[r:ALIAS{type:line.same\_name}]->(entity2)

RETURN r

symptom\_name.csv 导入症状实体文件

LOAD CSV WITH HEADERS FROM "file:///symptom\_name.csv" AS line

MERGE (p:Symptom{name:line.symptom\_name})

complication\_name.csv 导入并发症实体文件

LOAD CSV WITH HEADERS FROM "file:///complication\_name.csv" AS line

MERGE (p:Symptom {name:line.complication\_name})

//添加索引

CREATE CONSTRAINT ON (p:Symptom)

ASSERT p.name IS UNIQUE

//导入病名实体和症状实体之间的关系

LOAD CSV WITH HEADERS FROM "file:///illness\_classical\_symptom.csv" AS line

MATCH (entity1:Disease{name:line.illness\_name}),(entity2:Symptom{name:line.symptom\_name})

CREATE (entity1)-[r:HAS\_SYMPTOM{type:line.classical\_symptom}]->(entity2)

RETURN r

//导入病名实体和并发症实体之间的关系

LOAD CSV WITH HEADERS FROM "file:///illness\_complication.csv" AS line

MATCH (entity1:Disease{name:line.illness\_name}),(entity2:Symptom{name:line.sickness})

CREATE (entity1)-[r:ACOMPANY\_SYMPTOM{type:line.complication}]->(entity2)

RETURN r

regular\_medication\_name.csv 导入药品实体文件

LOAD CSV WITH HEADERS FROM "file:///regular\_medication\_name.csv" AS line

MERGE (p:Drug{name:line.regular\_medication\_name})

//添加索引

CREATE CONSTRAINT ON (p:Drug)

ASSERT p.name IS UNIQUE

//导入病名实体与药物实体之间的关系

LOAD CSV WITH HEADERS FROM "file:///illness\_regular\_medication.csv" AS line

MATCH (entity1:Disease{name:line.illness\_name}),(entity2:Drug{name:line.medication\_name})

CREATE (entity1)-[r:COMMON\_DRUG{type:line.regular\_medication}]->(entity2)

RETURN r

examination\_name.csv 导入检查实体文件

LOAD CSV WITH HEADERS FROM "file:///examination\_name.csv" AS line

MERGE (p:Operation{name:line.examination\_name})

//添加索引

CREATE CONSTRAINT ON (p:Operation)

ASSERT p.name IS UNIQUE

//导入病名实体与检查实体之间的关系

LOAD CSV WITH HEADERS FROM "file:///illness\_examination.csv" AS line

MATCH (entity1:Disease{name:line.illness\_name}),(entity2:Operation{name:line.examination\_name})

CREATE (entity1)-[r:NEED\_CHECK{type:line.examination}]->(entity2)

RETURN r

surgeries\_name.csv 导入手术实体文件

LOAD CSV WITH HEADERS FROM "file:///surgeries\_name.csv" AS line

MERGE (p:Check{name:line. surgeries\_name})

//添加索引

CREATE CONSTRAINT ON (p:Check)

ASSERT p.name IS UNIQUE

//导入病名实体与手术实体之间的关系

LOAD CSV WITH HEADERS FROM "file:///illness\_surgeries\_name.csv" AS line

MATCH (entity1:Disease{name:line.illness\_name}),(entity2:Check{name:line.surgeries\_name})

CREATE (entity1)-[r:RECOMMEND\_SURGERY{type:line.surgeries}]->(entity2)

RETURN r

pathogenic\_site\_name.csv 导入发病部位实体文件

LOAD CSV WITH HEADERS FROM "file:///pathogenic\_site\_name.csv" AS line

MERGE (p:Pathogenic\_Site {name:line.pathogenic\_site\_name})

//添加索引

CREATE CONSTRAINT ON (p:Pathogenic\_Site)

ASSERT p.name IS UNIQUE

//导入病名实体与部位实体之间的关系

LOAD CSV WITH HEADERS FROM "file:///illness\_pathogenic\_site.csv" AS line

MATCH (entity1:Disease{name:line.illness\_name}),(entity2:Pathogenic\_Site{name:line.parts\_name})

CREATE (entity1)-[r:COMMON\_DISEASE\_SITE{type:line.pathogenic\_site}]->(entity2)

RETURN r

查找定长关系的多级节点与关系

match data=(a)-[rel]-(b)-[r]-(c) where a.name='左精索静脉曲张' and c.name='生殖器念珠菌病' return data

match data=(na:company{id:'12399145'})-[\*1..3]->(nb:company) return data