Competency Questions and DL queries and results for the Hypertension Ontology

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| **Competency question** | **Query** | **Query result** | **Status** |
| What are all of the elevated BP measures in the data set? | 'elevated blood pressure measurement datum' | Basil’s elevated systolic BP measurement datum  Clara first elevated systolic BP measurement datum  Clara second elevated systolic BP measurement datum  Desmond’s first elevated systolic BP measurement datum  Desmond’s second elevated systolic BP measurement datum  Ernest’s diastolic BP measurement datum  Ernest’s systolic BP measurement datum | Validated for adult systolic and diastolic BPs |
| Which data items in the data set are about elevated BP phenotypes? | 'is about' some 'elevated blood pressure phenotype' | Amy’s diagnosis  Basil’s elevated systolic BP measurement datum  Clara’s first elevated systolic BP measurement datum  Clara’s second elevated systolic BP measurement datum  Desmond’s first diastolic BP measurement datum  Desmond’s second diastolic BP measurement datum  Ernest’s diastolic BP measurement datum  Ernest’s elevated systolic BP | Validated for adult systolic and diastolic BPs and diagnoses of hypertension |
| What are all of BP values in the data set >= 126.0 mm Hg? | 'blood pressure measurement datum' and 'has measurement value' some xsd:double[>= "126.0"^^xsd:double] | Basil’s elevated systolic BP measurement datum  Clara’s first elevated systolic BP measurement datum  Ernest’s systolic BP measurement datum | Validated |
| What are all of the health care encounters with elevated BP values? | 'health care encounter' and has\_specified\_output some 'elevated systolic blood pressure measurement datum' | Basil’s first health care encounter  Clara’s first health care encounter  Clara’s second health care encounter  Ernest’s only health care encounter | Validated for adults, systolic and diastolic BP |
| Who are the patients with elevated BP values at 2 more health care encounters? | 'Homo sapiens' and 'bearer of' some ('blood pressure' and inverse('is about') min 2 ('elevated blood pressure measurement datum' and is\_specified\_output\_of some 'health care encounter')) | Clara  Desmond | Validated for adults, systolic and diastolic BP |
| Who has a hypertensive phenotype? | ‘has phenotype’ some Hypertension | Clara  Desmond |  |
| Who has a phenotype that gives rise to hypertension?  (Note: for hypertension, this is equivalent to the same query above, but for cases where multiple phenotypes may give rise to a common disease, this distinction is more useful.) | 'has phenotype' some ('feature gives rise to disease' some hypertension) | Clara  Desmond |  |
| Which patients have been diagnosed with hypertension? | organism and inverse('is about') some 'diagnosis of hypertension' | Amy | Validated for adults, systolic and diastolic BP |
| Who has either a diagnosis of hypertension or a hypertensive phenotype? | (organism and inverse('is about') some 'diagnosis of hypertension') or ('has phenotype' some Hypertension) | Amy  Clara  Desmond | Validated for adults, systolic and diastolic BP |