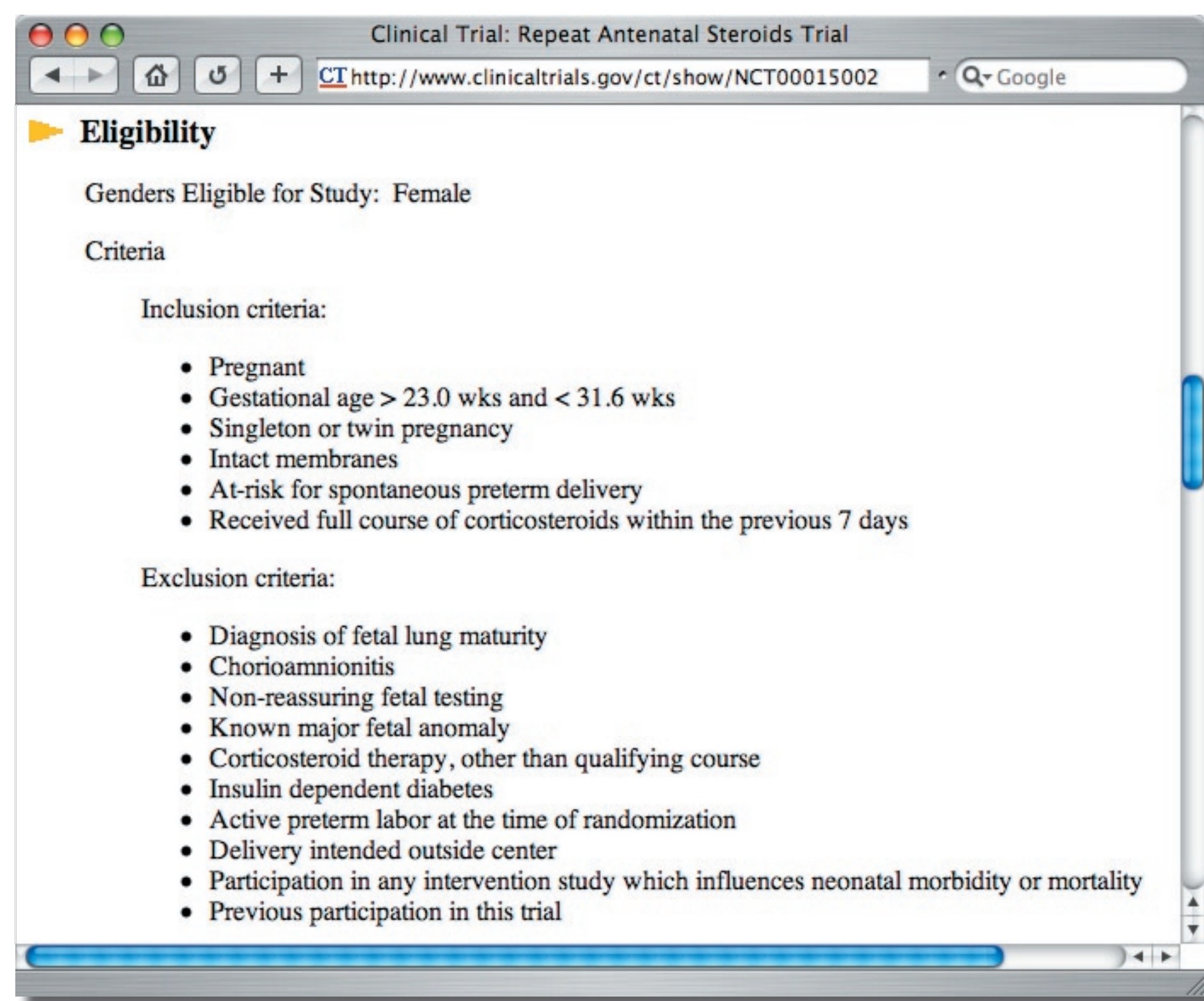


Generating Medical Logic Modules for Clinical Trial Eligibility

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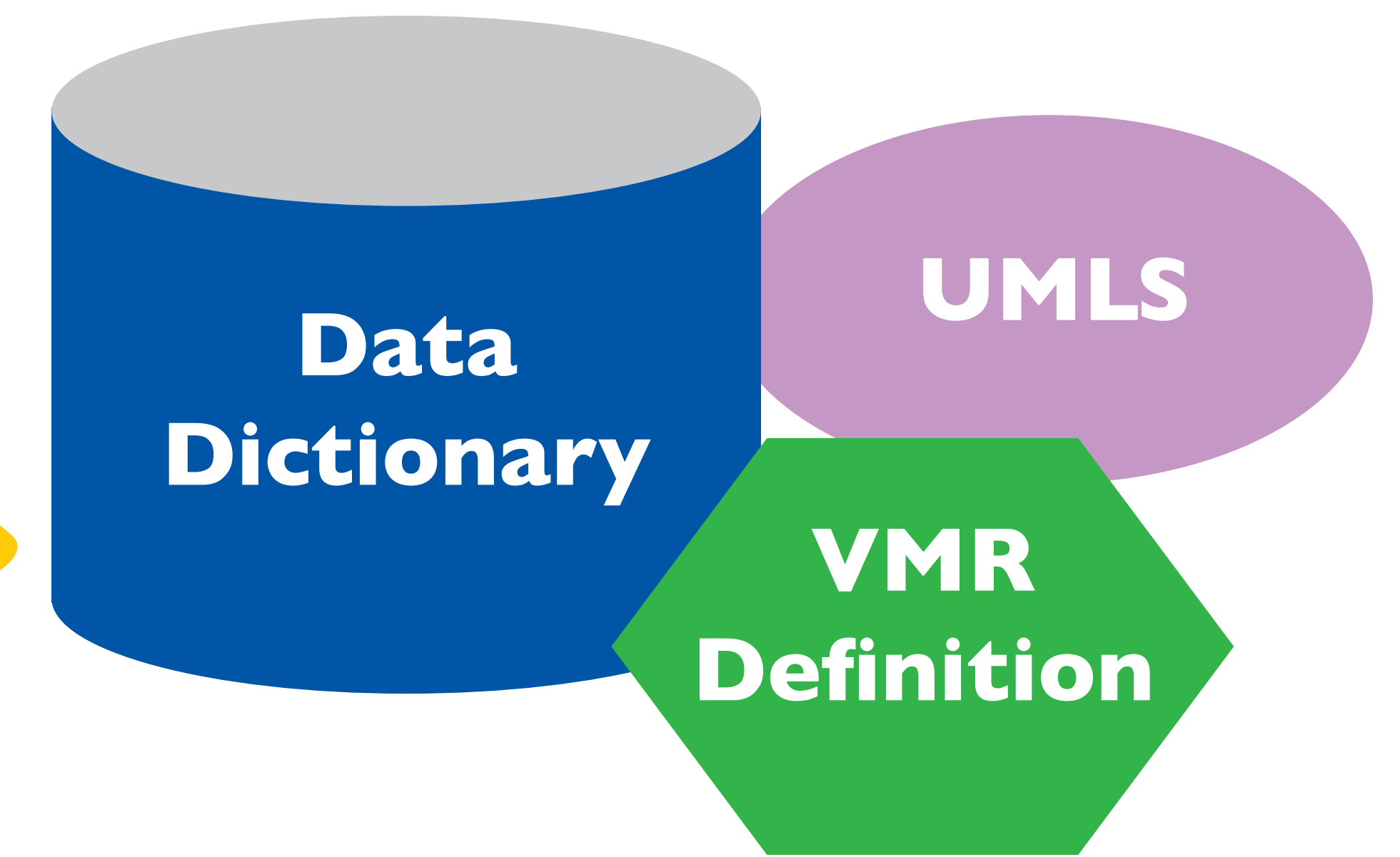
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(1) Extract & structure eligibility criteria

```
<trial>
<trialInformation>
<trialName>Repeat Antenatal Steroids Trial</trialName>
<trialRef>http://www.clinicaltrials.gov/ct/show/NCT00015002</trialRef>
<referenceDate>20031105</referenceDate>
</trialInformation>
<eligibilityCriteria>
<documentItem id="di1" type="inclusion">
<naturalLanguage>
<text>Genders Eligible for Study: Female</text>
</naturalLanguage>
<predicates>
<predicate id="p1">gender(Patient, A)</predicate>
<predicate id="p2">female(A)</predicate>
</predicates>
</documentItem>
<documentItem id="di2" type="inclusion">
<naturalLanguage>
<text>Pregnant</text>
</naturalLanguage>
<predicates>
<predicate id="p3">pregnant(Patient)</predicate>
</predicates>
</documentItem>
<documentItem id="di3" type="inclusion">
<naturalLanguage>
<text>Gestational age greater than 23.0 wks and less than 31.6 wks</text>
</naturalLanguage>
<predicates>
<predicate id="p4">gestational_age(Patient, B)</predicate>
<predicate id="p5">B > 23.0</predicate>
<predicate id="p6">B < 31.6</predicate>
<predicate id="p7">units(B, weeks)</predicate>
</predicates>
</documentItem>
<expression>
<conjunct>
<disjunct><pred ref="p1"/></disjunct>
<disjunct><pred ref="p2"/></disjunct>
<disjunct><pred ref="p3"/></disjunct>
<disjunct><pred ref="p4"/></disjunct>
<disjunct><pred ref="p5"/></disjunct>
<disjunct><pred ref="p6"/></disjunct>
<disjunct><pred ref="p7"/></disjunct>
</conjunct>
</expression>
</eligibilityCriteria>
</trial>
```



(4) Generate Arden Syntax

```
<criteria trial="http://www.clinicaltrials.gov/ct/show/NCT00015002">
<criterion>
<text>Eligibility</text>
<text>Genders Eligible for Study: Female</text>
</criterion>
<criterion>
<text>Eligibility</text>
<text>Criteria</text>
<text>Inclusion criteria:</text>
<text>Pregnant</text>
</criterion>
<criterion>
<text>Eligibility</text>
<text>Criteria</text>
<text>Inclusion criteria:</text>
<text>Gestational age greater than 23.0 wks and less than 31.6 wks</text>
</criterion>
</criteria>
```

(2) Parse criteria

(3) Generate predicates

```
linkparser> a criterion equals gestational age greater than 23.0 wks and less than 31.6 wks.
+++Time 0.15 seconds (0.34 total)
Found 21 linkages (11 had no P.P. violations)
Linkage 1, cost vector = (UNUSED=0 DIS=0 AND=1 LEN=24)
-----Xp-----
+-----Mvt-----+
| +-----+ +-----+ |
+-----Wd-----+ +-----Os-----+ +-----Opc-----+
| +-----+ +-----+ | +-----+ |
| ++Ds+++Ss+++ +-----A-----Mam---Mvt++ +Dmcn+ | | +Dmcn++
```

```
KNOWLEDGE:
TYPE: . . .
DATA:
gender :=
read last {vmr.observation[code=gender]};
pregnant :=
read last {vmr.observation[code=finding, value=pregnant]};
gestational_age :=
read last {vmr.observation[code=gestational_age]};
;;
EVOKE: . . .
LOGIC:
IF gender = "female"
AND pregnant is not null
AND gestational_age > 23.0 weeks
AND gestational_age < 31.6 weeks
THEN conclude true;
ENDIF;
;;
ACTION: . . .
```