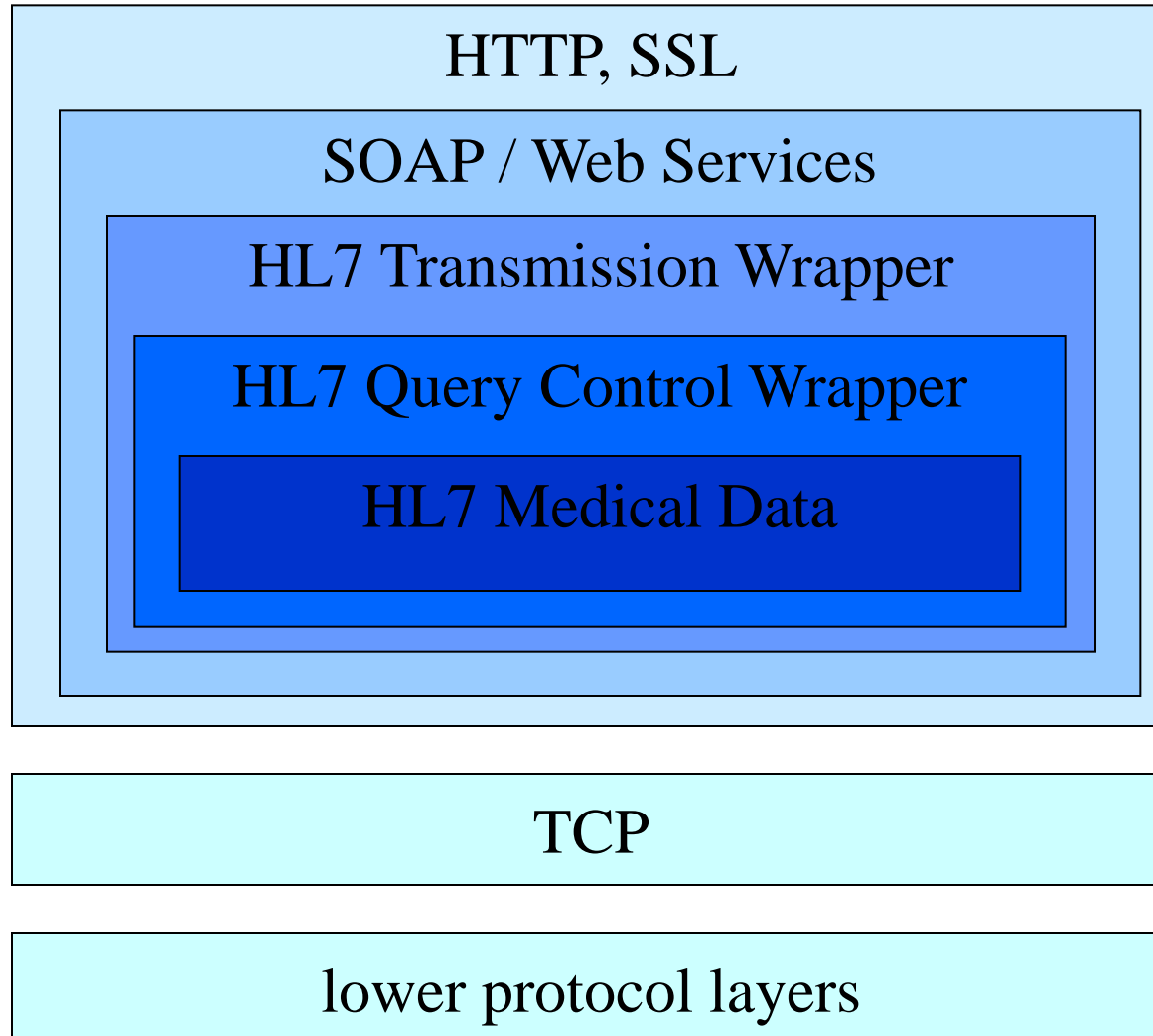


# HL7v3, the vocabulary

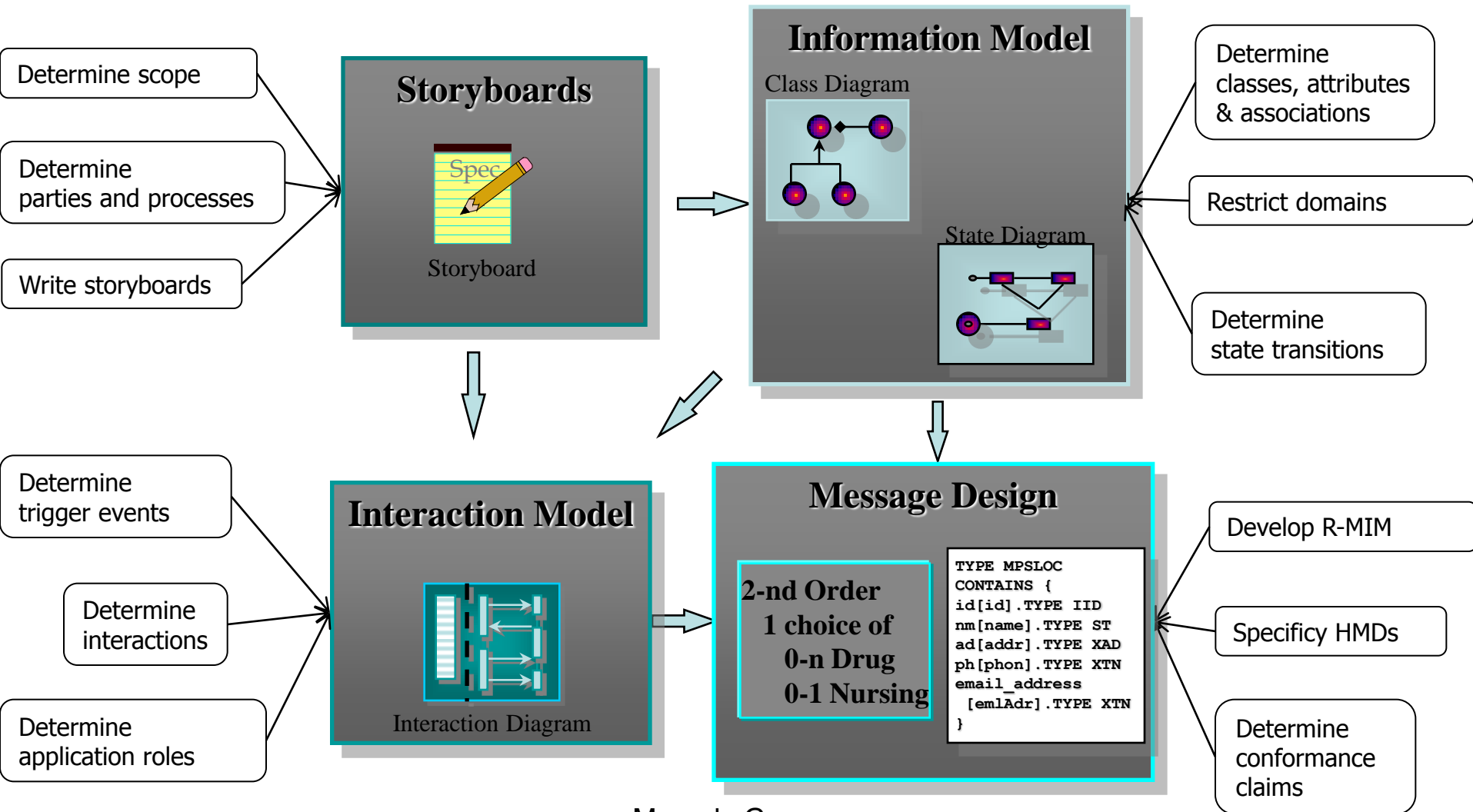
# Just enough HL7

- HL7 version 2 : currently used
- HL7v3:
  - XML based
  - Reference Information Model
- HL7v3 Message contains:
  - medical payload
  - Trigger Event Wrappers (Query Control etc.)
  - Transmission Wrapper

# HL7v3 Layered Model



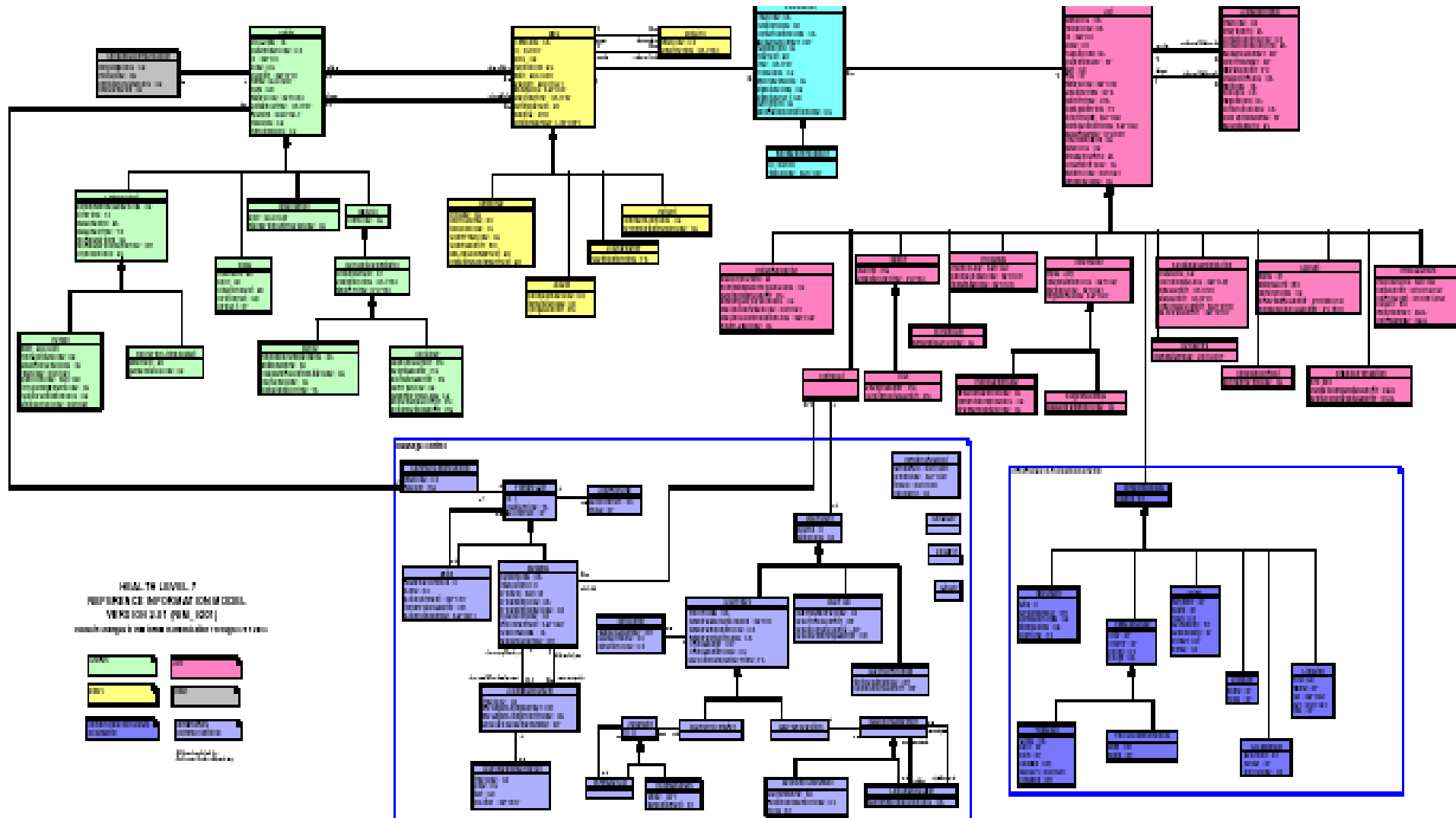
# HL7 Development Framework (HDF)



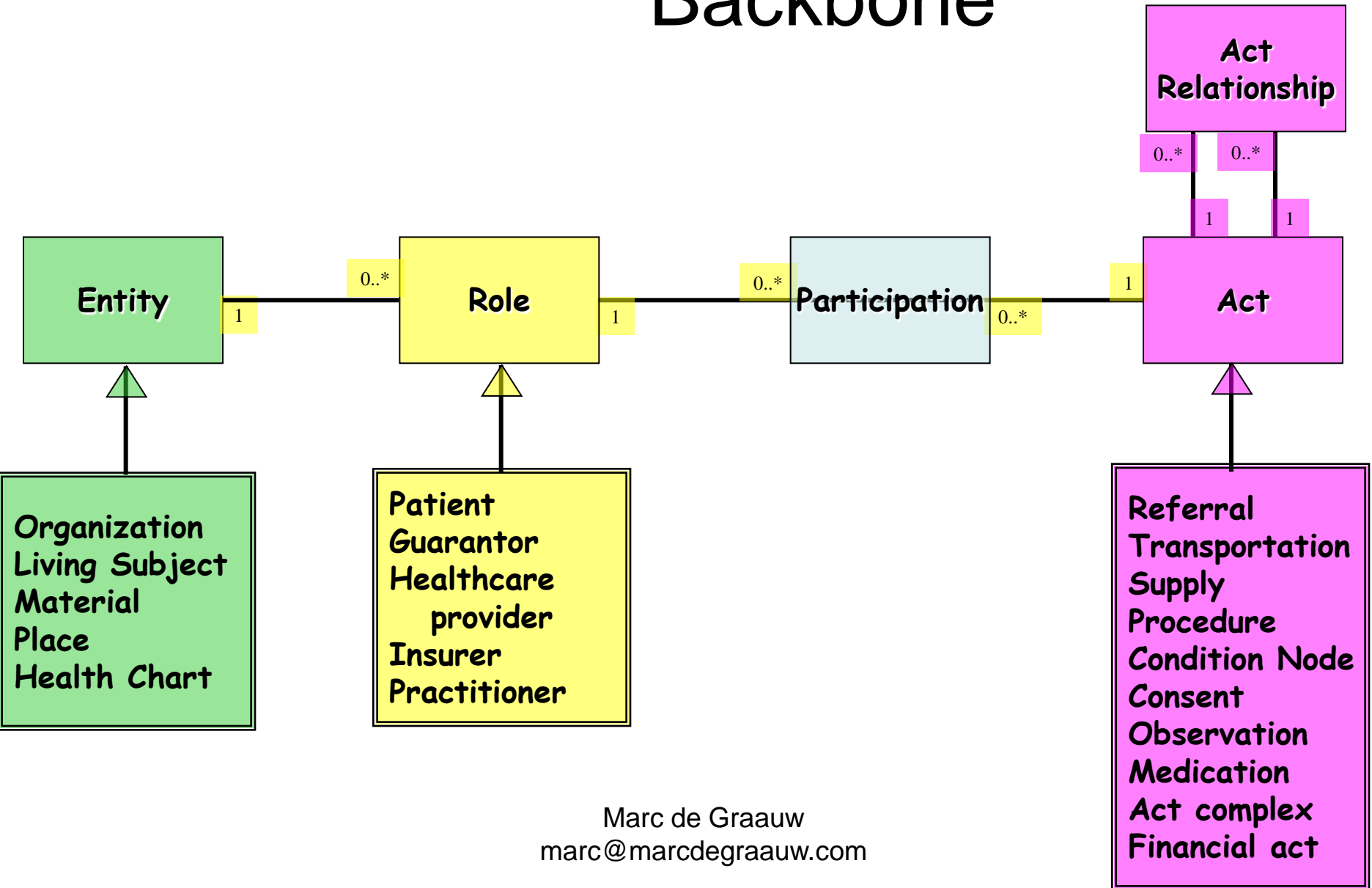
# Storyboard

Mevrouw Jansen komt langs bij apotheek 'De Gulle Gaper' met een handgeschreven recept van haar huisarts Dr. van Beek. Het recept is voor 2x daags 1 tablet Diazepam 250 mg, gedurende 4 weken. De apotheker van de Gulle Gaper, Dr. Poeder, pakt een een doosje met 5 strips van 10 tabletten en voegt daar een 6e strip van tabletten aan toe. Het geheel van 60 tabletten Diazepam 250 mg wordt overhandigd aan mevr. Jansen, inclusief een bijsluiter en met het gebruiksvoorschrift (van de huisarts) op de verpakking.

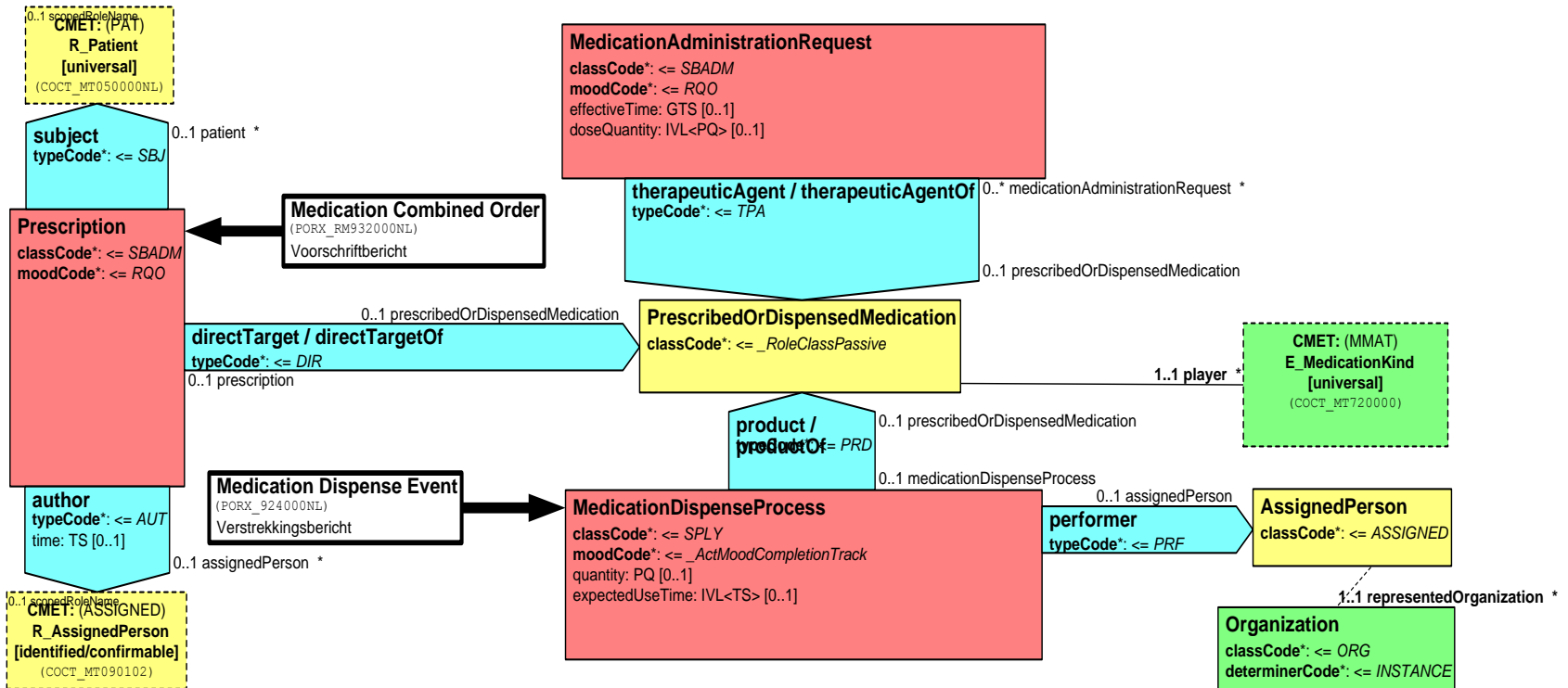
# RIM (Reference Information Model)



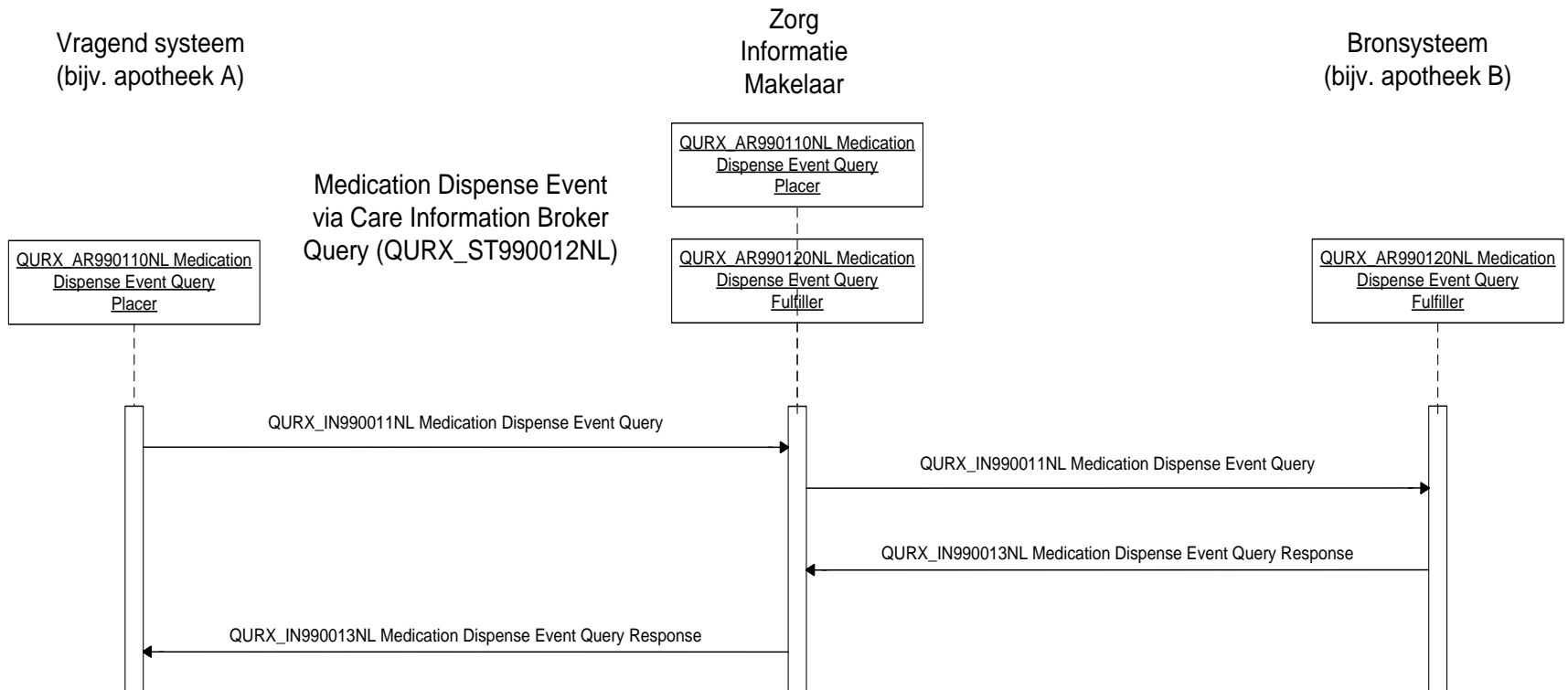
# RIM (Reference Information Model) Backbone



# Medication D-MIM



# Interaction diagram

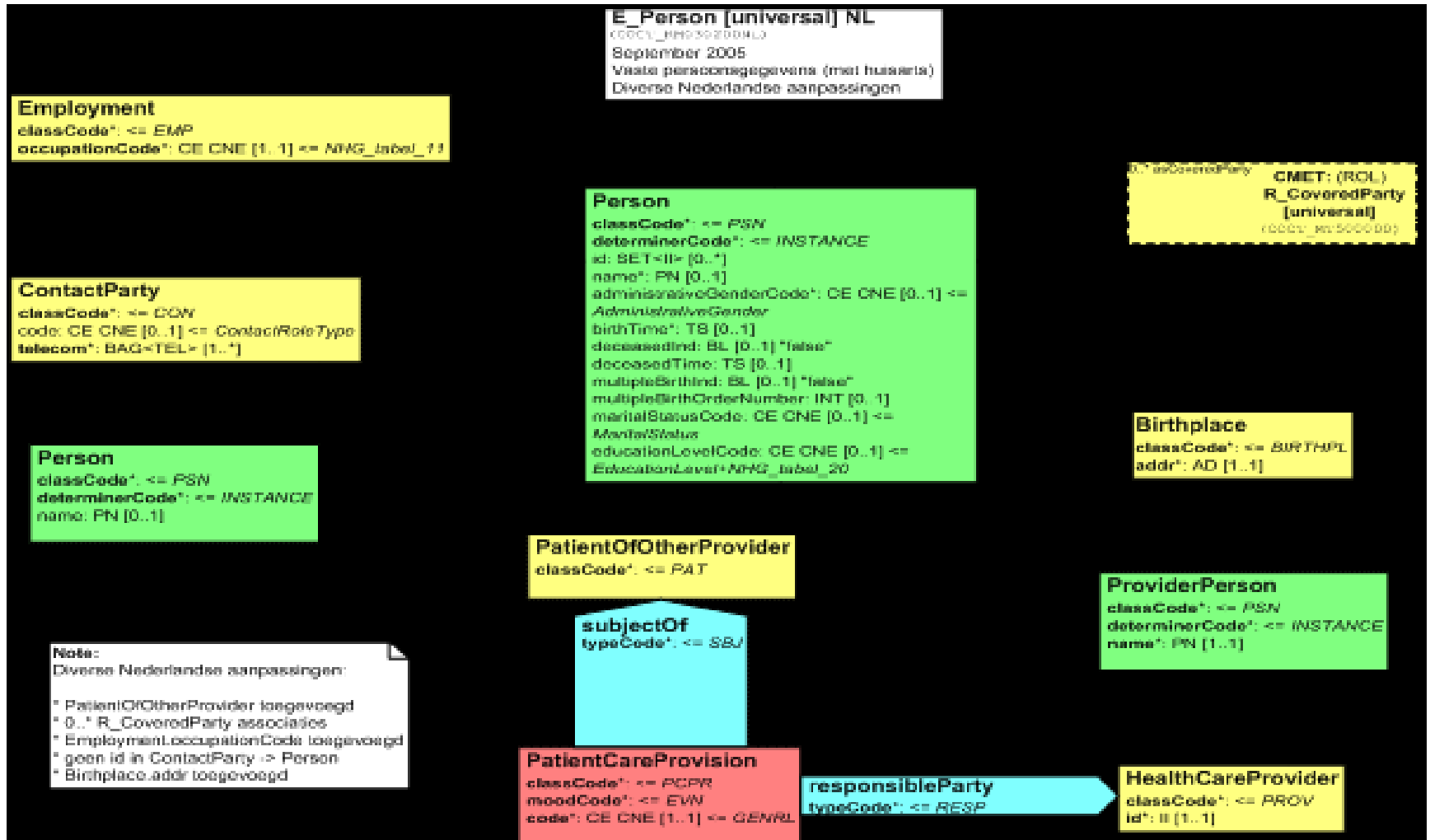




# XML fragment

```
<Prescription>
  <id extension="0003000201" root="2.16.840.1.113883.2.4.6.1.6005465.12.1"/>
  <statusCode code="active"/>
  <subject>
    <Patient>
      <id extension="012345672" root="2.16.840.1.113883.2.4.6.3"/>
      <statusCode code="active"/>
      <Person>
        <name>
          <given qualifier="IN">J.M.</given>
          <family>Breed</family>
        </name>
        <administrativeGenderCode code="M" codeSystem="2.16.840.1.113883.5.1"/>
        <birthTime value="19680816"/>
      </Person>
      <Organization>
        <id extension="06005465" root="2.16.840.1.113883.2.4.6.1"/>
      </Organization>
    </Patient>
  </subject>
```

# Person Healthcare



```
- <xs:complexType name="COCT_MT030200NL.Person">
- <xs:sequence>
  <xs:element name="id" type="II" minOccurs="0" maxOccurs="unbounded"/>
  <xs:element name="name" type="PN" minOccurs="0" maxOccurs="1"/>
  <xs:element name="statusCode" type="CS" minOccurs="0" maxOccurs="1"/>
  <xs:element name="administrativeGenderCode" type="CV" minOccurs="0" maxOccurs="1"/>
  <xs:element name="birthTime" type="TS" minOccurs="0" maxOccurs="1"/>
  <xs:element name="deceasedInd" type="BL" minOccurs="0" maxOccurs="1"/>
  <xs:element name="deceasedTime" type="TS" minOccurs="0" maxOccurs="1"/>
  <xs:element name="multipleBirthInd" type="BL" minOccurs="0" maxOccurs="1"/>
  <xs:element name="multipleBirthOrderNumber" type="INT" minOccurs="0" maxOccurs="1"/>
  <xs:element name="maritalStatusCode" type="CV" minOccurs="0" maxOccurs="1"/>
  <xs:element name="educationLevelCode" nillable="true" type="CE" minOccurs="0" maxOccurs="1"/>
  <xs:element type="COCT_MT030200NL.Birthplace" nillable="true" minOccurs="0" maxOccurs="1" name="birthplace"/>
  <xs:element type="COCT_MT030200NL.ContactParty" nillable="true" minOccurs="0" maxOccurs="unbounded"/>
```

# Person Healthcare

De klasse *Person* heeft de volgende attributen:

<b>classCode</b>	<b>PSN</b> (Person) Een persoon (mens)
<b>determinerCode</b>	<b>INSTANCE</b> Een specifiek persoon (individu)
<b>id</b>	Persoonsnummer
<b>name</b>	Naam
<b>administrativeGenderCode</b>	Geslacht
<b>birthTime</b>	Geboortedatum (en evt. -tijd)
<b>deceasedInd</b>	Overlijdensindicatie
<b>deceasedTime</b>	Overlijdensdatum (en evt. -tijd)
<b>multipleBirthInd</b>	Meerlingindicatie
<b>multipleBirthOrderNumber</b>	Meerlingvolgnummer
<b>maritalStatusCode</b>	Burgerlijke staat
<b>educationLevelCode</b>	Opleidingsniveau

# Person Healthcare

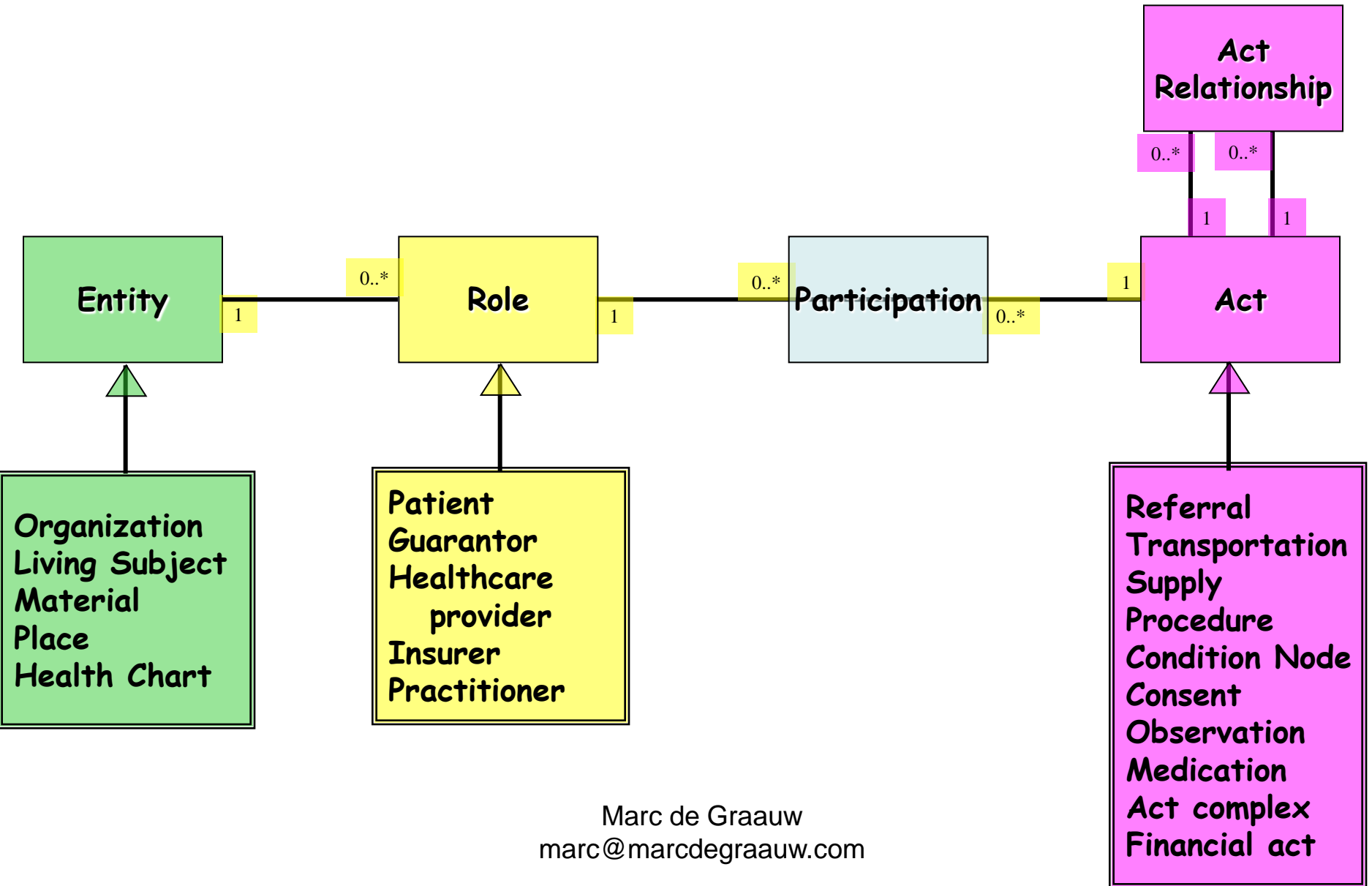
De klasse *Person* heeft de volgende associaties:

<b>0..1</b>	<b>Employment</b>	Beroep
<b>0..*</b>	<b>ContactParty</b>	Contactpers(o)n(en)
<b>0..1</b>	<b>PatientOfOtherProvider</b>	Relatie met de huisarts
<b>0..1</b>	<b>Birthplace</b>	Geboorteplaats
<b>0..*</b>	<b>CoveredParty</b>	Zorgverzekering(en)

# Identification

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# RIM (Reference Information Model)



# RIM

- Entities (Person, Organization, Medication)
- Roles (Registered Nurse, Anesthesia Resident)
- Participations (provider, recipient)
- Acts (administer, prescribe)

# Identification in HL7

- HL7v3 datatype Instance Identifier

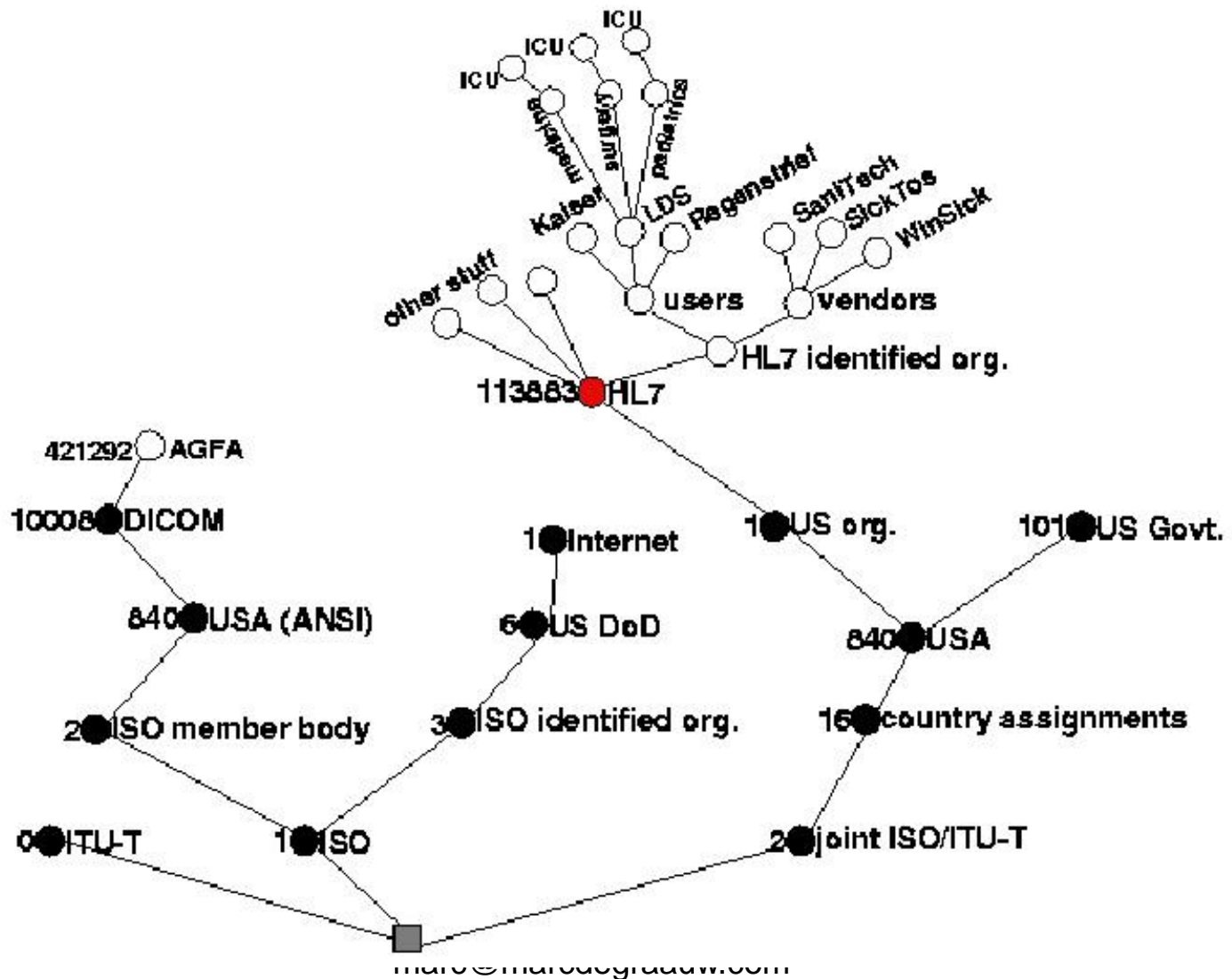
`<patientID>`

`<value extension="012345672" root="2.16.840.1.113883.2.4.6.3"/>`

`</patientID>`

- roots are OID's (Object Identifier)
- ITU-T ASN.1
- hierarchy
- extension is local identification system – in this case, BSN (social security number)

# HL7 in the OID tree



# A root OID

- 2.16.840.1.113883
  - HL7.org
- 2.16.840.1.113883.2
  - HL7 international affiliates
- 2.16.840.1.113883.2.4
  - HL7 Netherlands
- 2.16.840.1.113883.2.4.6
  - external id's
- 2.16.840.1.113883.2.4.6.6
  - AORTA application-id's
- 2.16.840.1.113883.2.4.6.6.1215432
  - root node app in hospital X
- 2.16.840.1.113883.2.4.6.6.1215432.4
  - prescription number within HIS

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# Identification in HL7

```
- <authorOrPerformer typeCode= AUI >
- <participant>
  - <AssignedPerson>
    → <id extension="012345678" root="2.16.528.1.1007.3.1" />
      <!-- specialist Dr. Jansen o.b.v. UZI nummer -->
  - <Organization>
    → <id extension="01234567" root="2.16.528.1.1007.3.3" />
      <!-- ziekenhuis Medisch Centrum Oost o.b.v. UZI abonneenummer -->
    </Organization>
  </AssignedPerson>
</participant>
</authorOrPerformer>
- <queryByParameter>
    → <queryId extension="0123456789" root="2.16.528.1.1007.3.2.1234567.2" />
      <statusCode code="active" />
      <initialQuantity value="1" />
  - <patientID>
    → <value extension="012345672" root="2.16.840.1.113883.2.4.6.3" />
      <!-- patiënt A. de Vries o.b.v. BSN -->
    </patientID>
```

# Identification in HL7

```
</performer>
- <product>
  - <dispensedMedication>
    - <MedicationKind>
      → - <code code="14760371" codeSystem="2.16.840.1.113883.2.4.4.8"
          codeSystemName="G-Standaard Artikel" displayName="CLARITINE TABLET 10MG">
      → <translation code="619094" codeSystem="2.16.840.1.113883.2.4.4.7" />
      → <translation code="73563" codeSystem="2.16.840.1.113883.2.4.4.1" />
        </code>
      </MedicationKind>
    - <directTargetOf>
      - <prescription>
```