



**HÄLSOUNIVERSITETET**  
LINKÖPINGS UNIVERSITET

# Laboratory medicine coding systems - a terminology framework

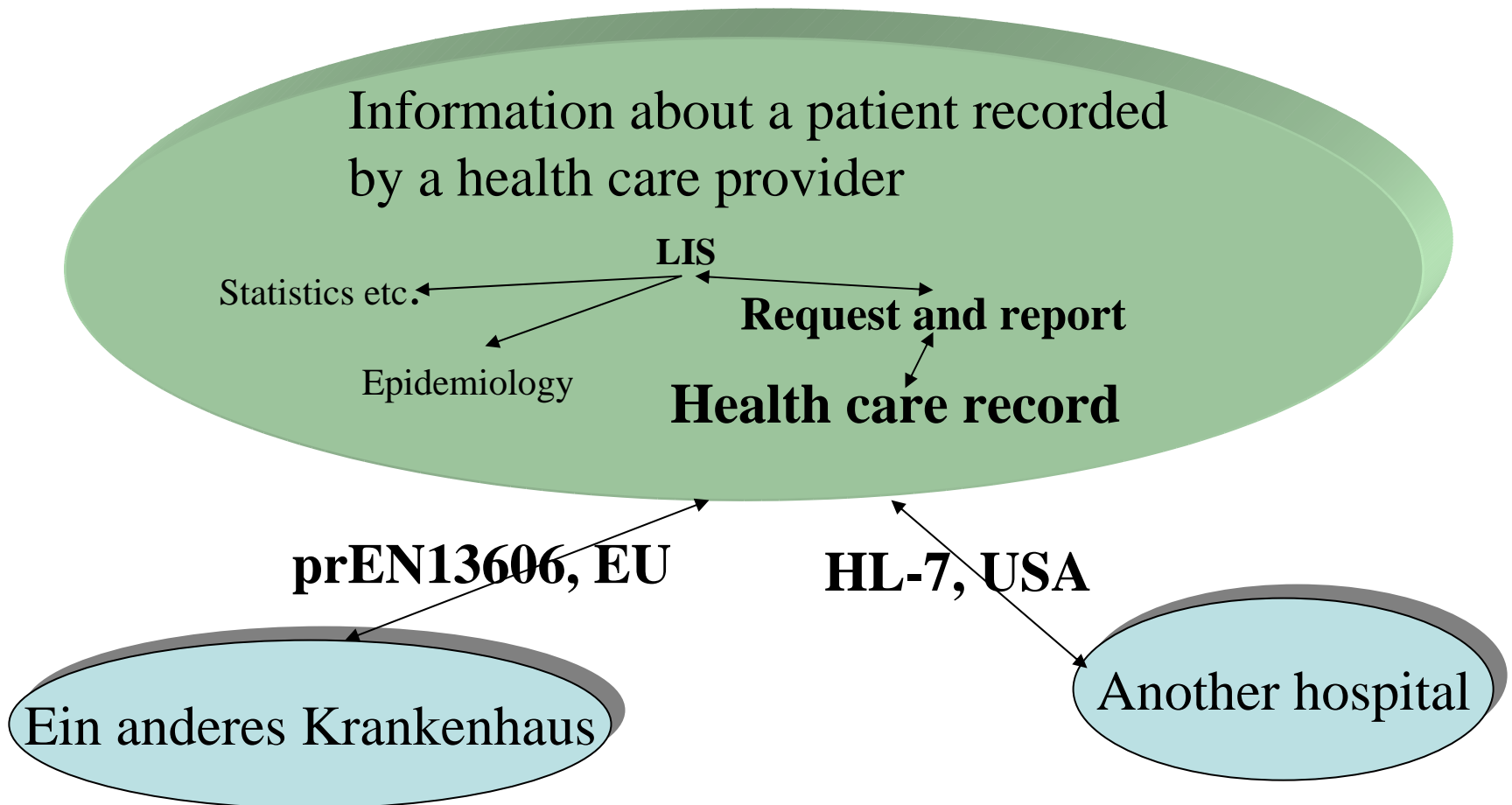
**Urban Forsum MD, PhD**

Professor of Clinical Microbiology

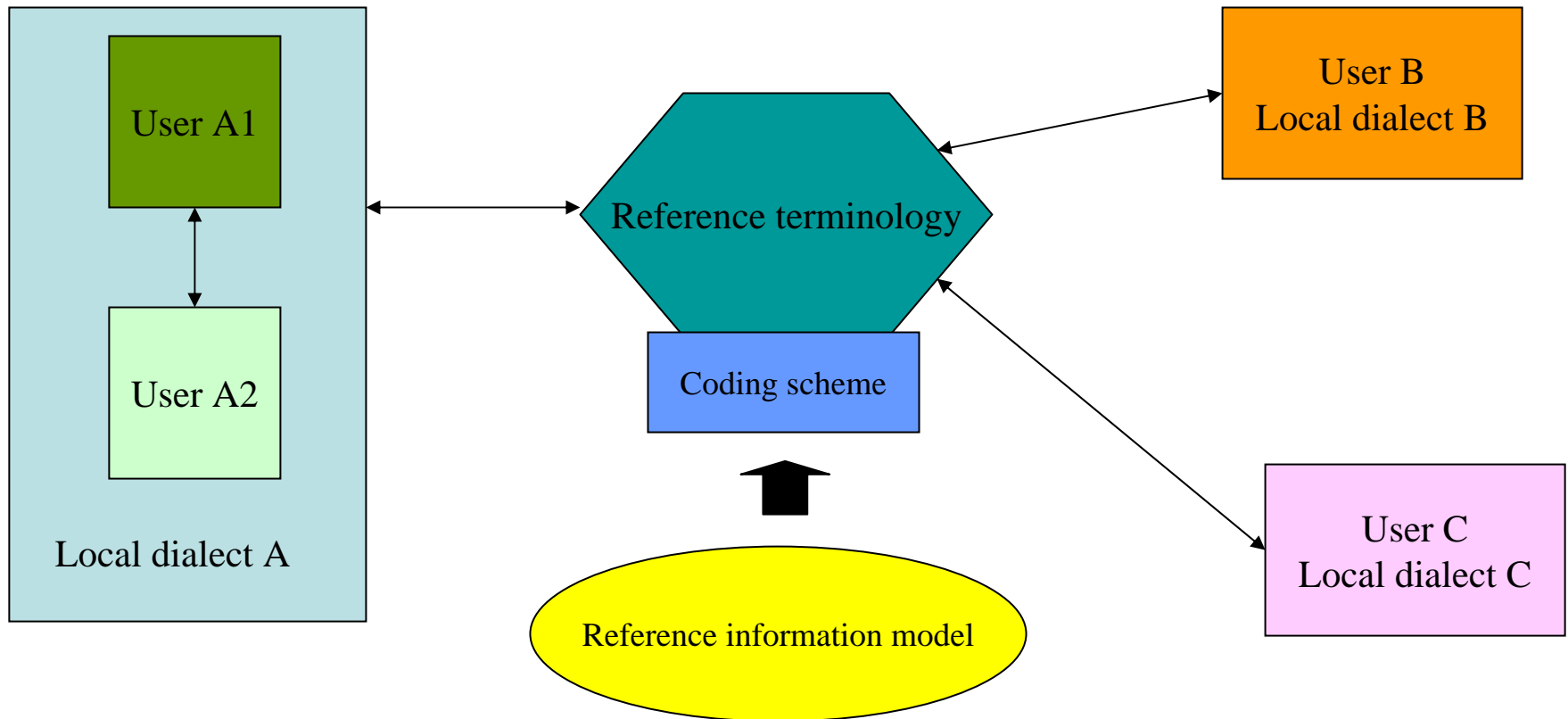
Linköping University

Sweden

# Informatics relationships in Laboratory Medicine



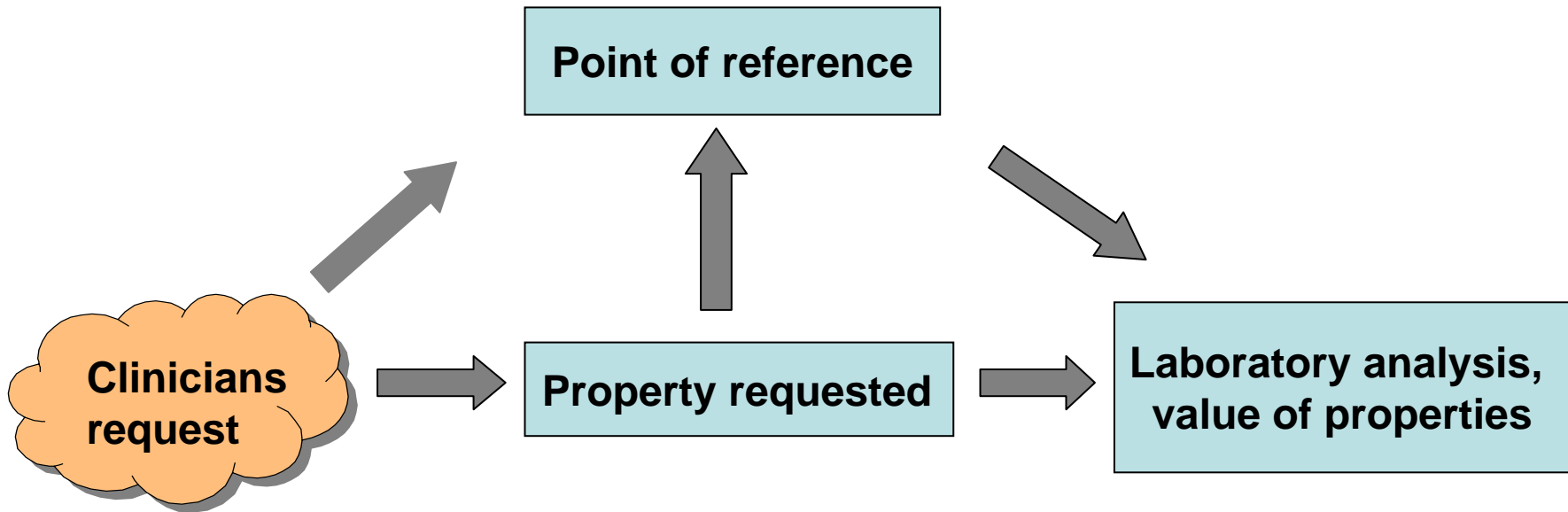
# Communication of concepts in Laboratory Medicine



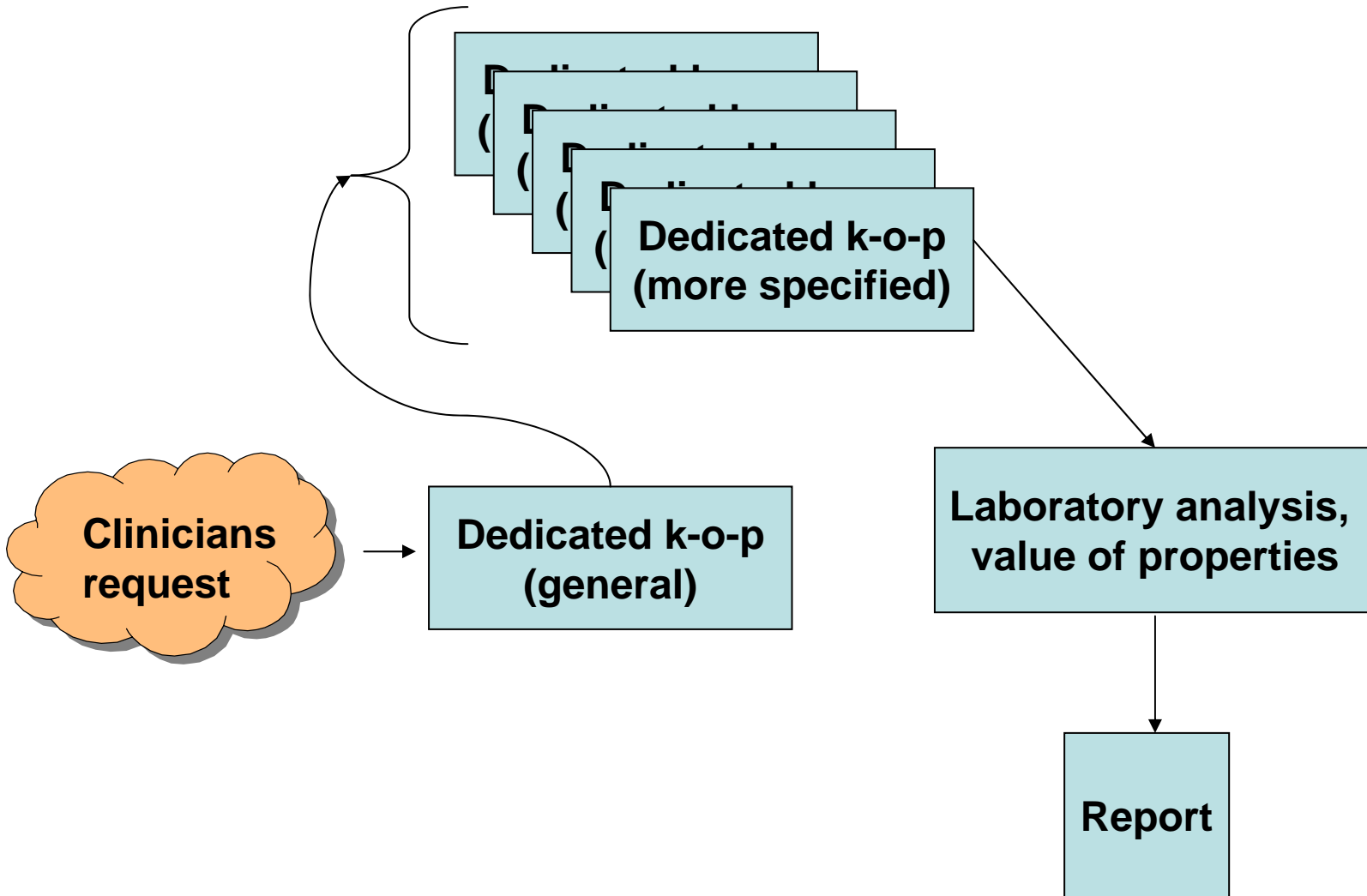
# Request for laboratory analysis



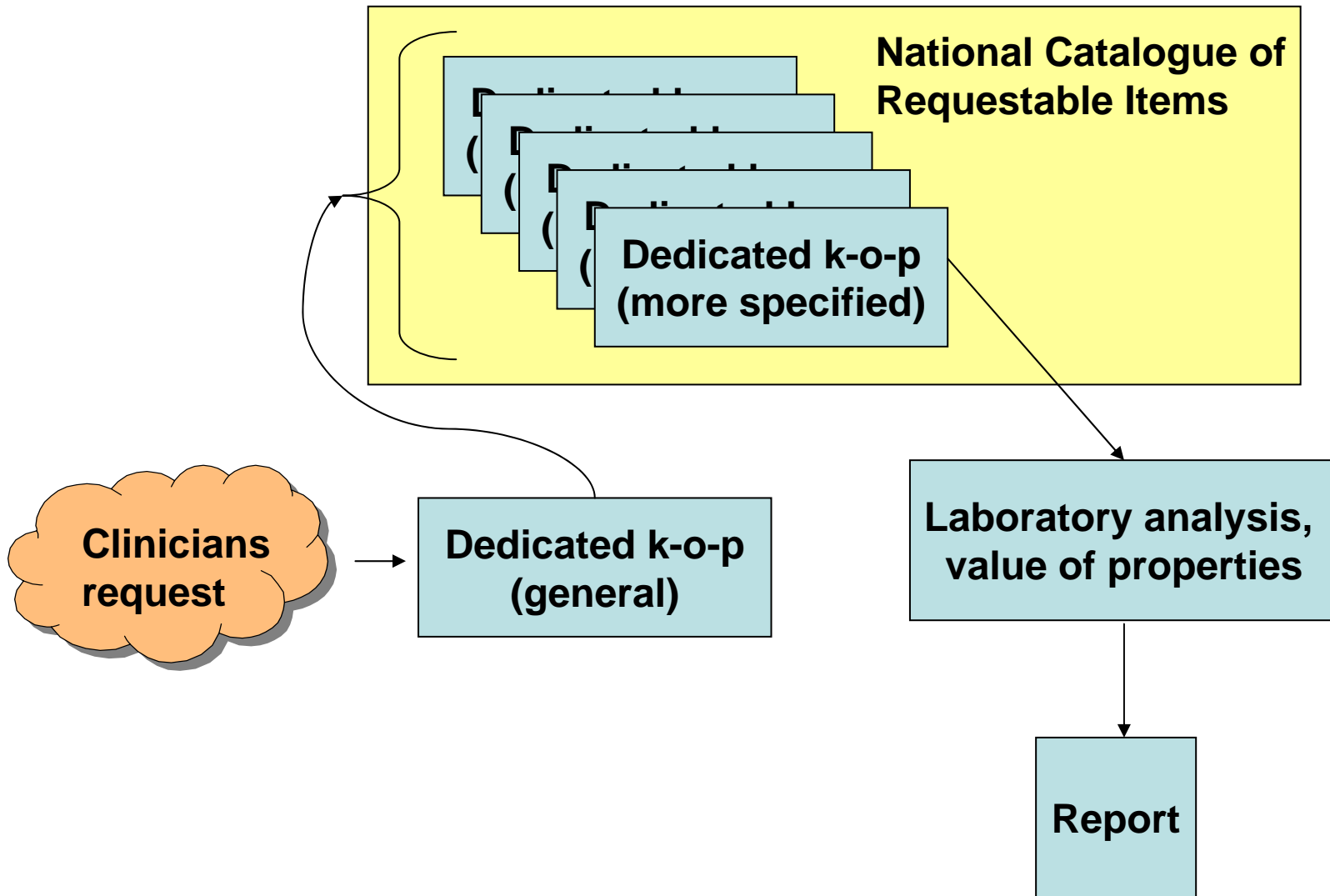
# Request for laboratory analysis



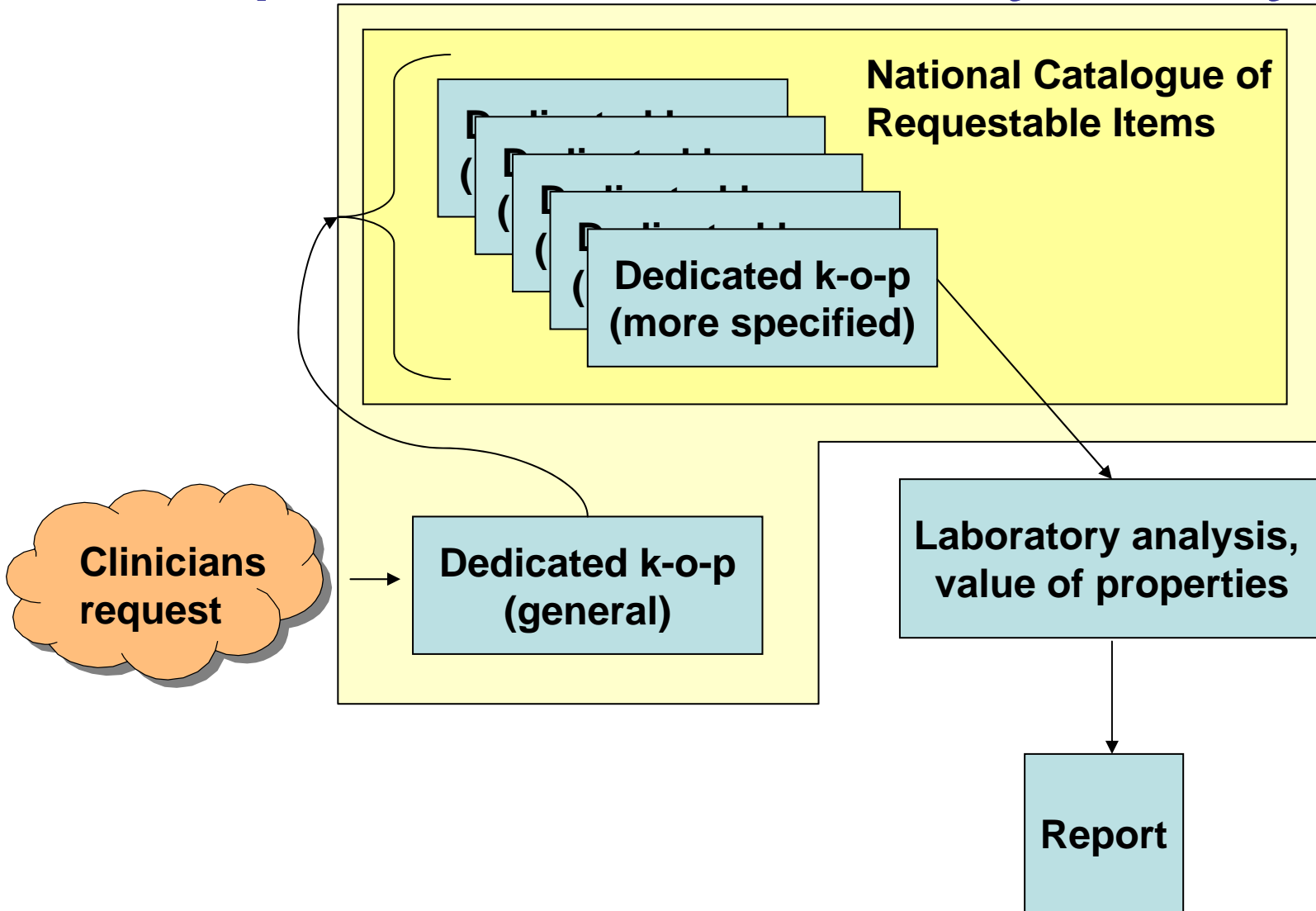
# Request for laboratory analysis

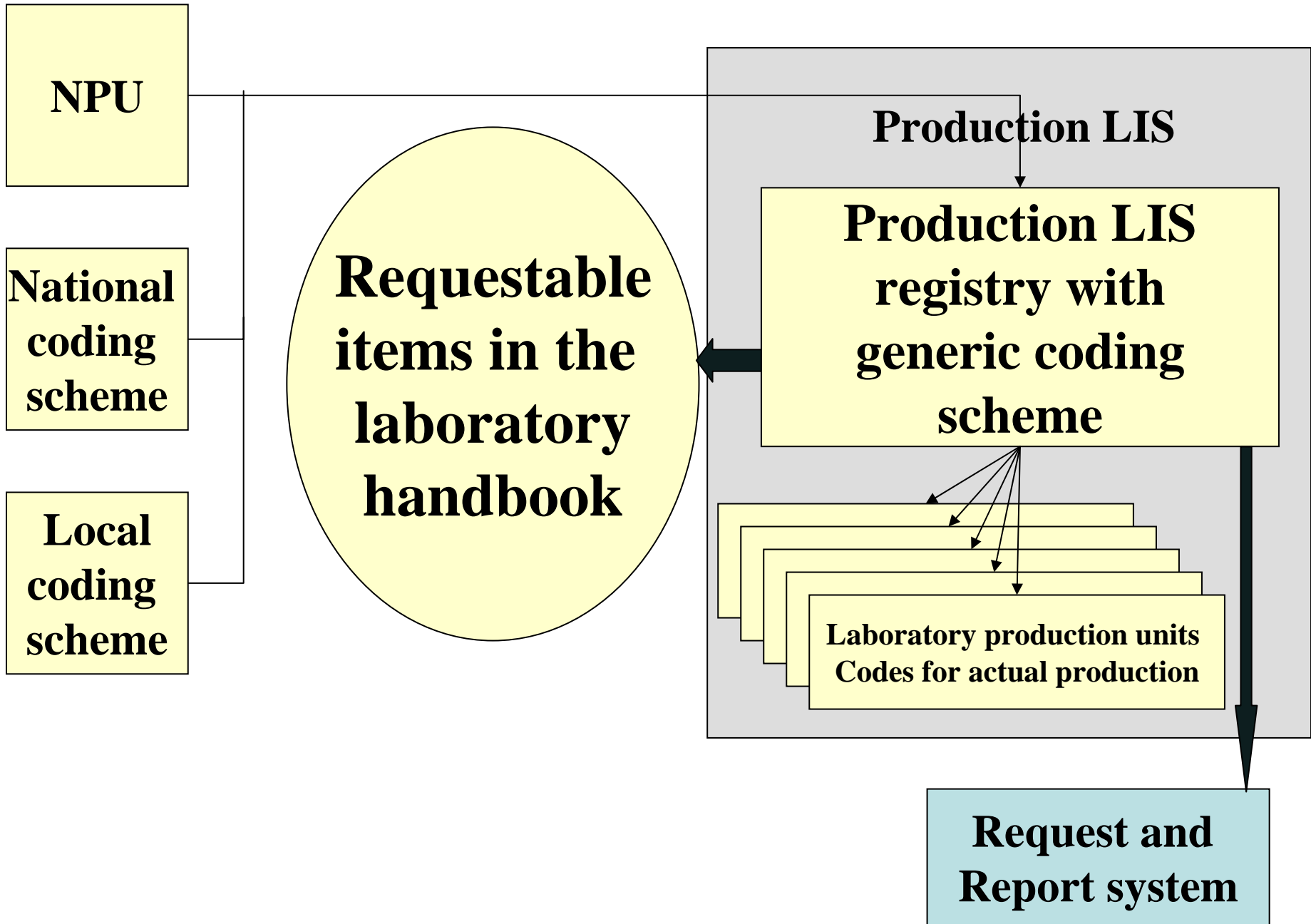


# Request for laboratory analysis



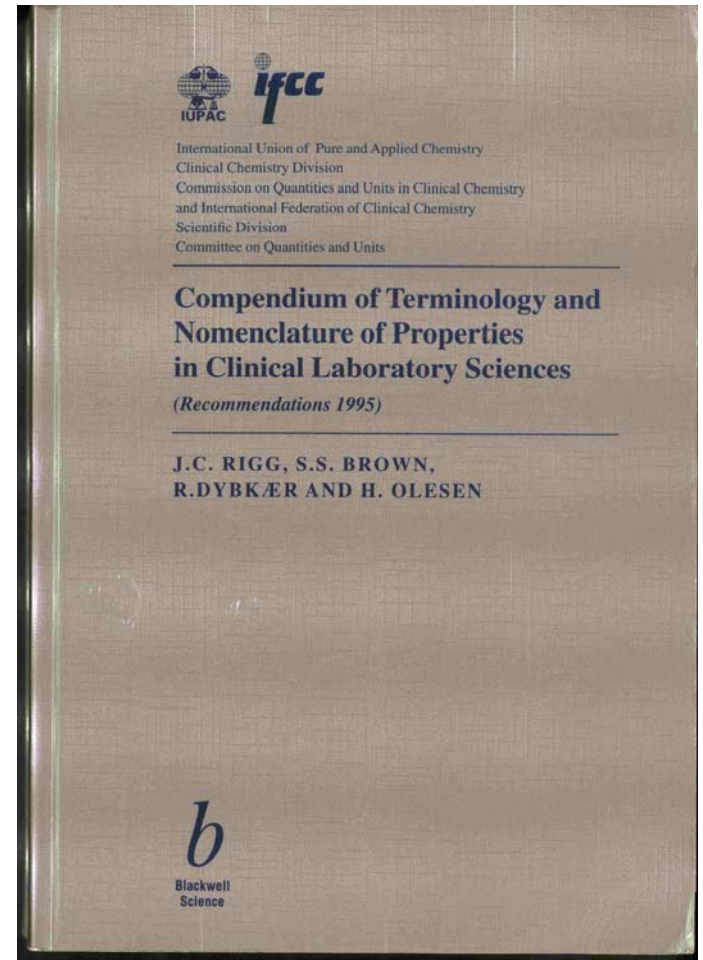
# Request for laboratory analysis



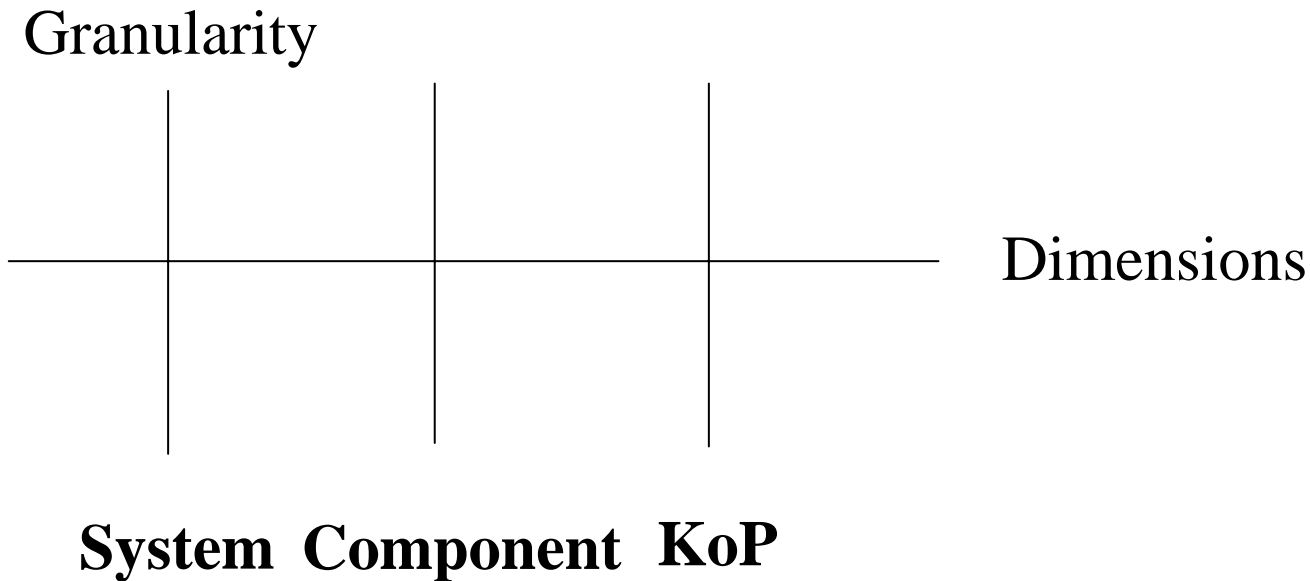


**END**

- **Quantities and units in clinical chemistry. Recommendation 1966. René Dybkær and Kjeld Jørgensen. Copenhagen: Munksgaard.**
- **Compendium of terminology and nomenclature of properties in clinical laboratory sciences. 1995 "The Silver Book".**
- **JC Rigg, SS Brown, R Dybkær, H Olesen. Oxford: Blackwell Science**



# C-NPU codes: Three axis's of the coding scheme



# C-NPU syntax for property

System(specification)—  
Component

(specification);Kind-of-property  
(specification) = ?

# Standardized request and report

## Particular property

### 1 Identification and time

- 1.1 identification of patient (ID)
- 1.2 date and time(s) of sampling

### 2 Property

- 2.1 system
- 2.2 component
- 2.3 kind-of-property

### 3 Results

- 3.1 equality, inequality or other operator
- 3.2 value
- 3.3 prefix
- 3.4 unit

### 4 Remarks

# Superordinate concepts in requests and reports

## Particular property

### 1 Identification and time

- 1.1 identification of patient (ID)
- 1.2 date and time(s) of sampling

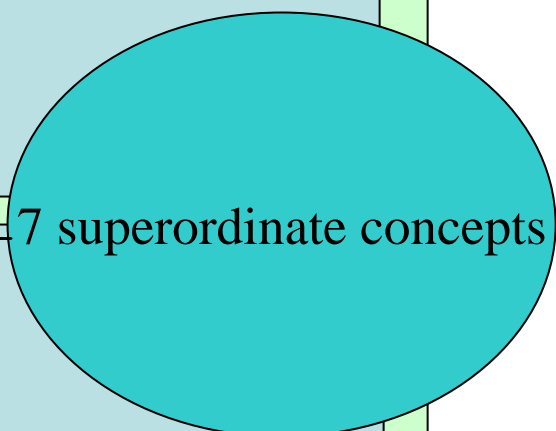
### 2 Property

- 2.1 system
- 2.2 component
- 2.3 kind-of-property

### 3 Results

- 3.1 equality, inequality or other operator
- 3.2 value
- 3.3 prefix
- 3.4 unit

### 4 Remarks



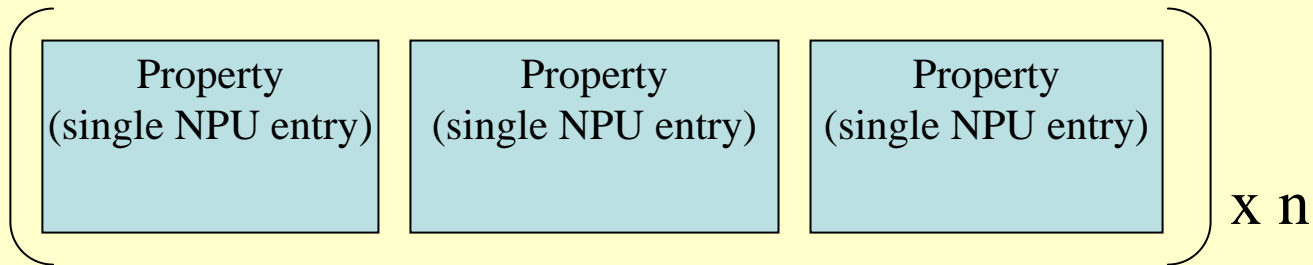
7 superordinate concepts

# C-NPU properties versus headers

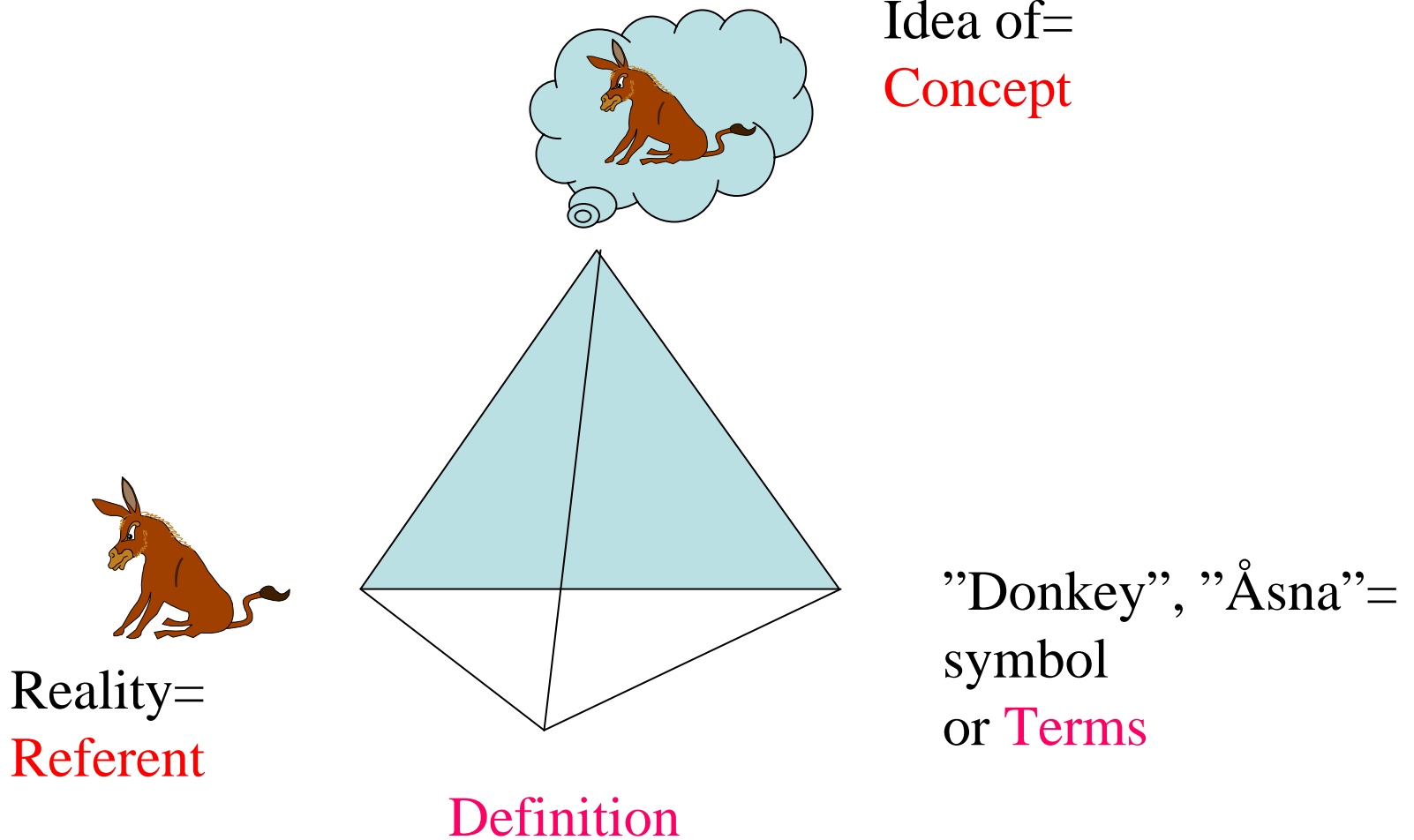
**Laboratory specialty**

**Technical, administrative or practical grouping**

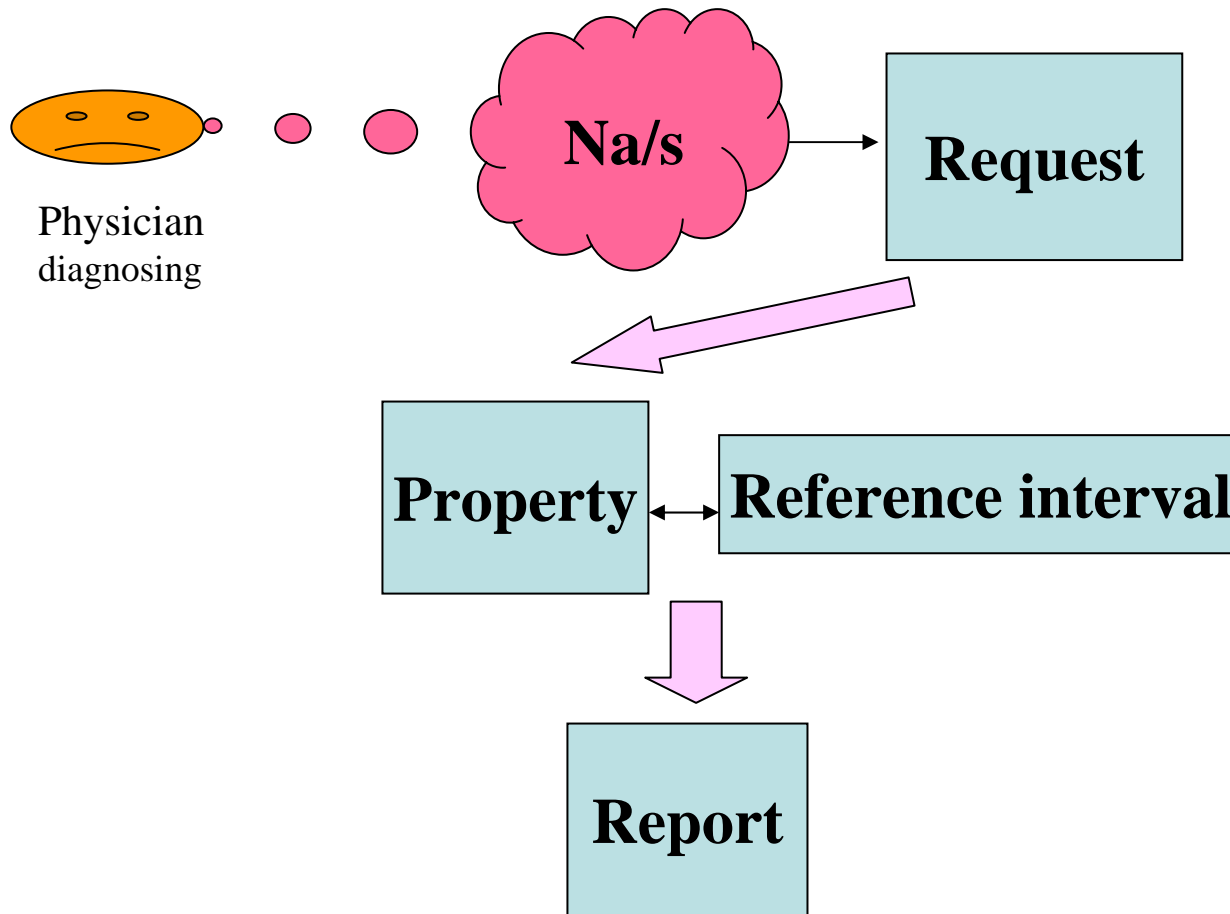
**Biological or clinical conceptually sound header**



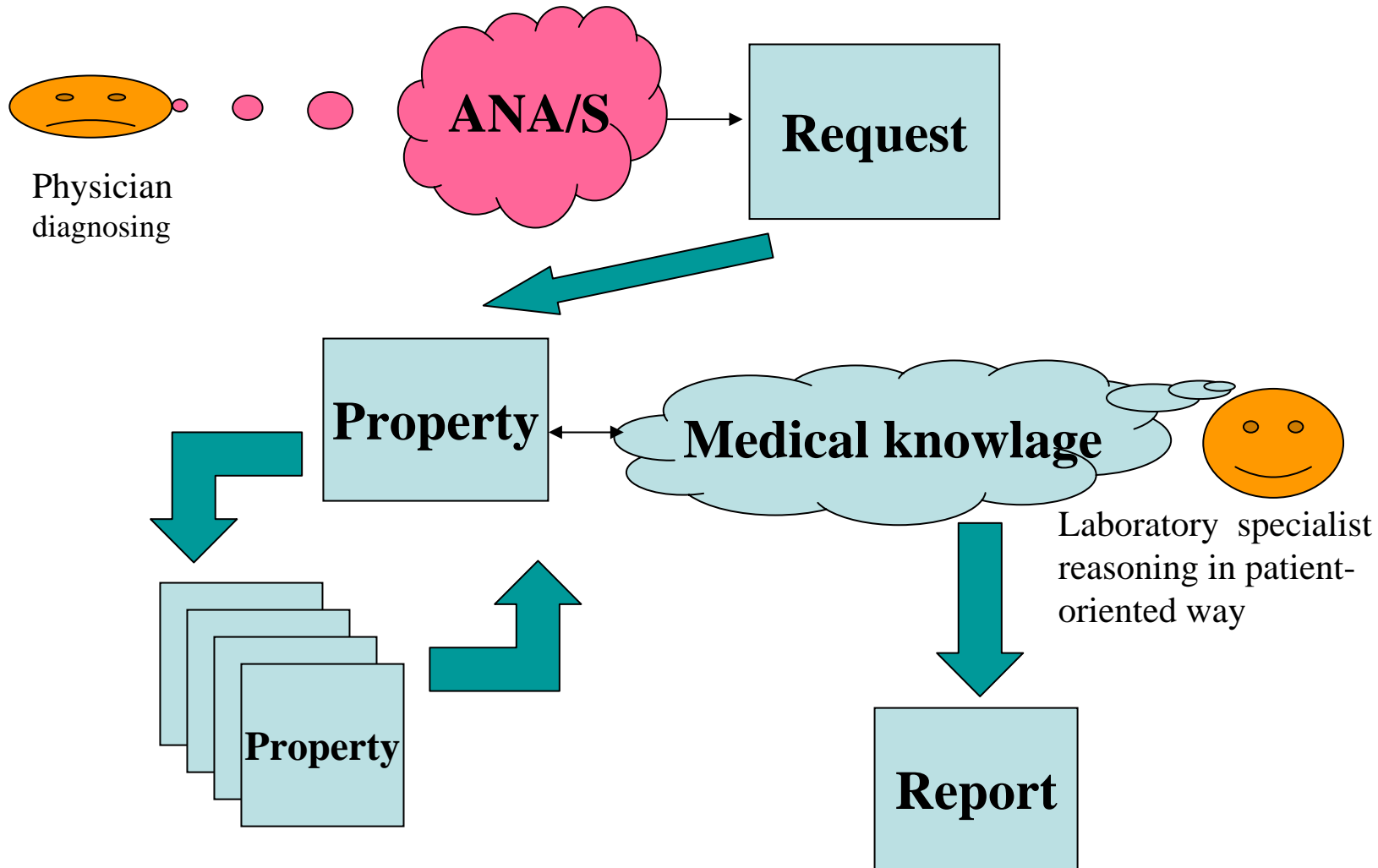
# "Ogden's pyramid"



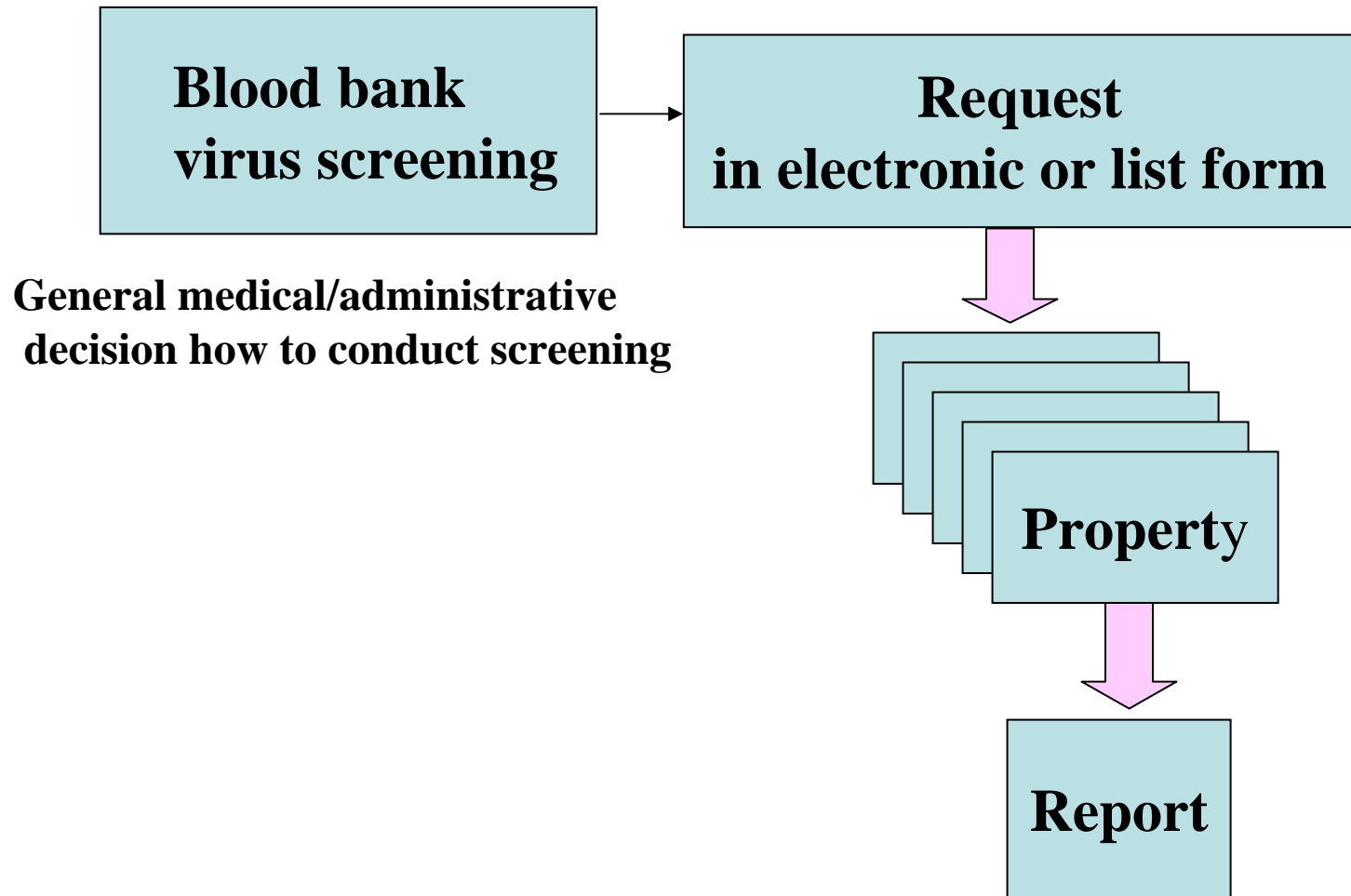
# Concepts in requests and reports (1)



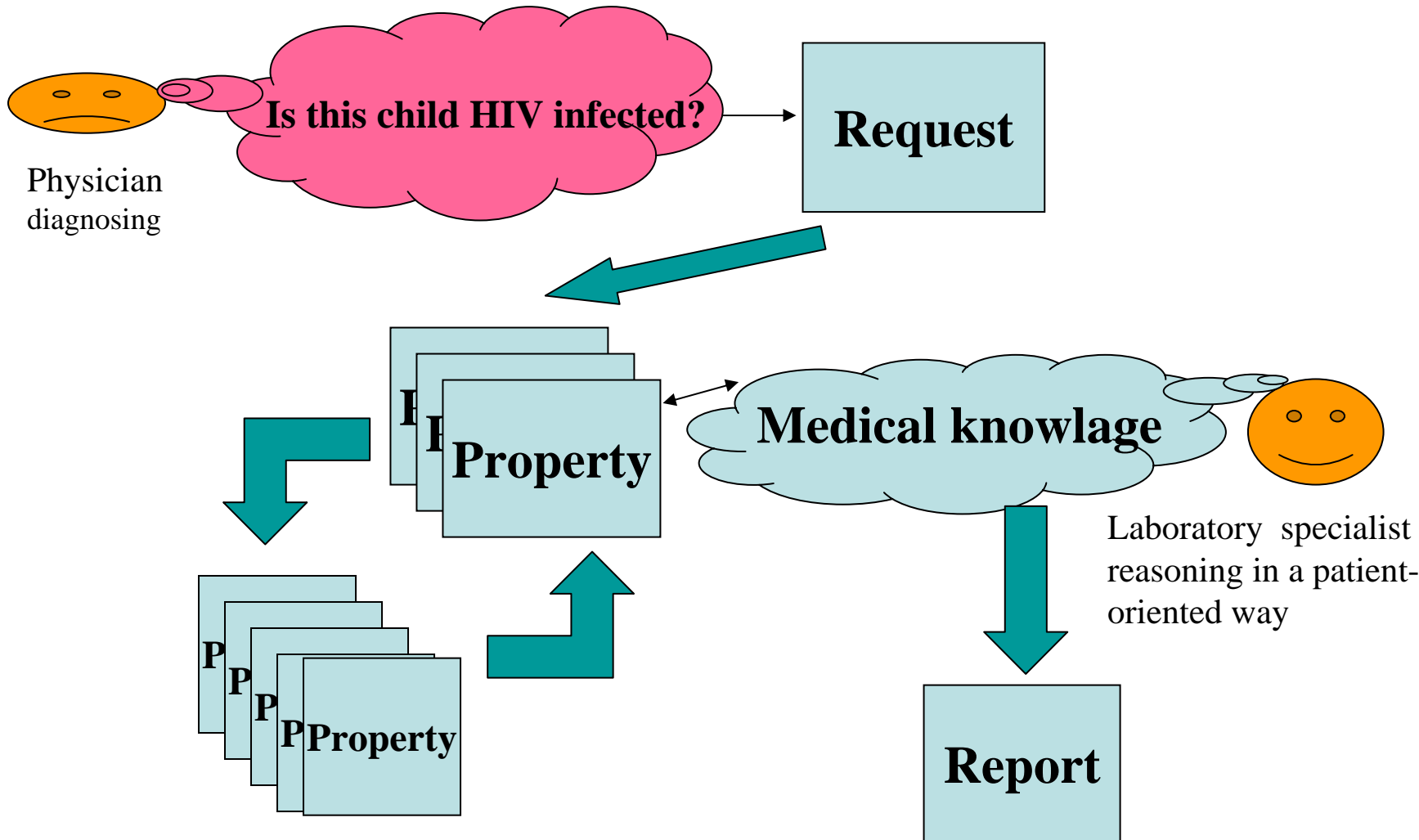
# Concepts in requests and reports (2)



# Concepts in requests and reports (3)

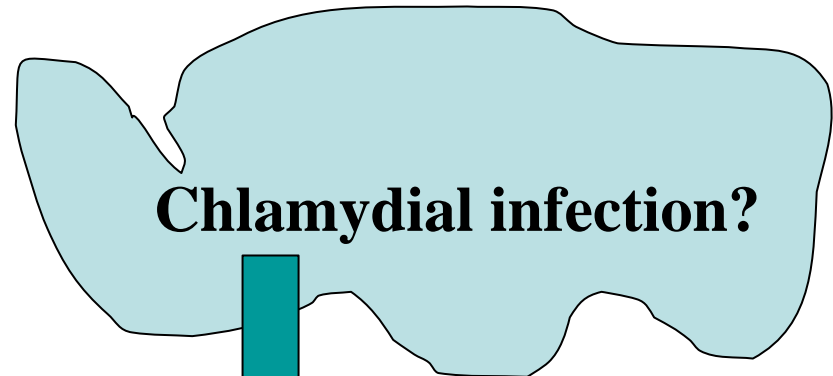


# Concepts in requests and reports (4)

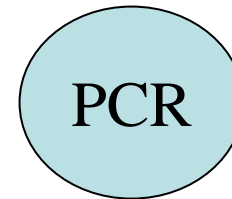


# The concept “request” (1)

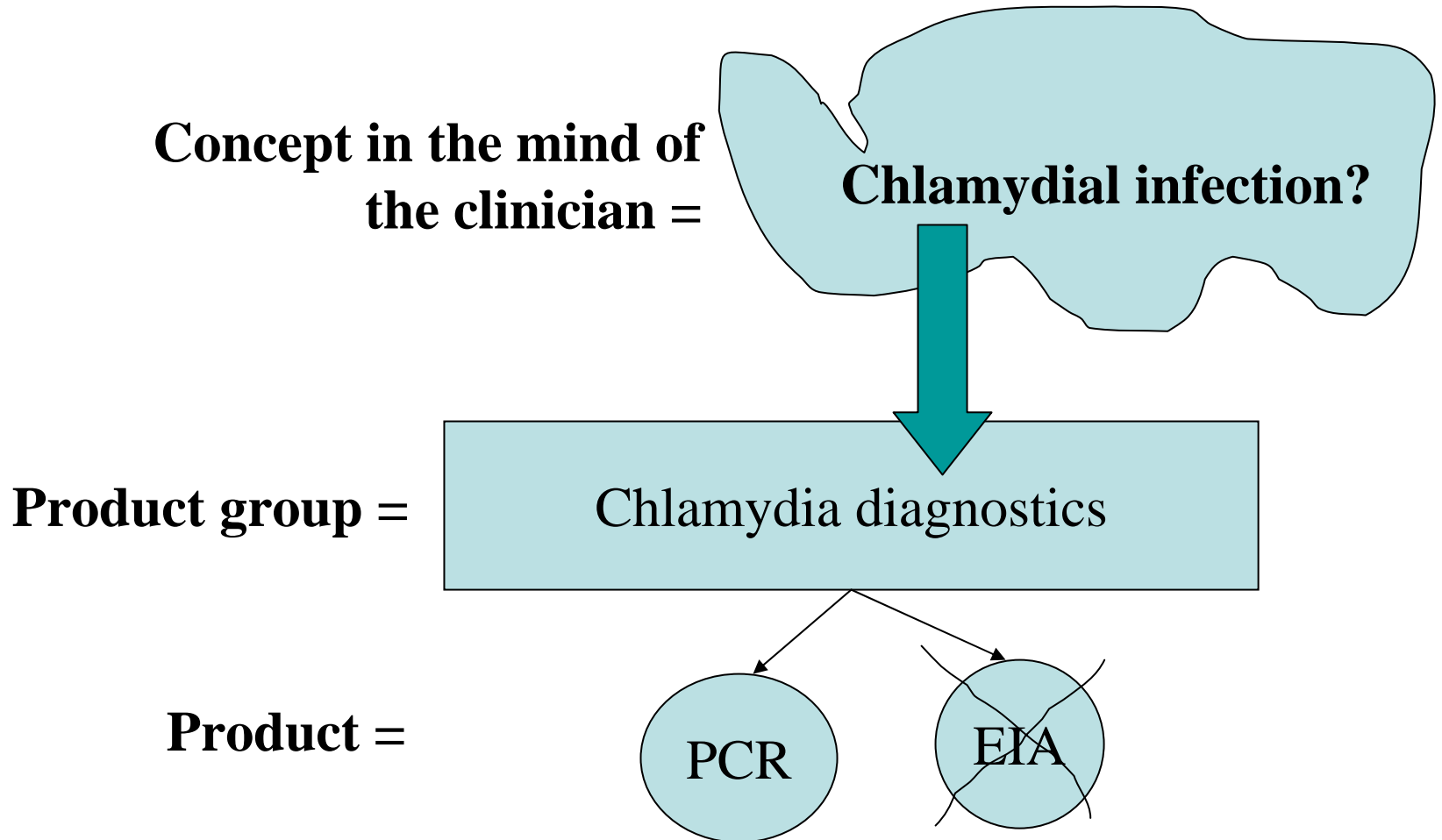
**Concept in the mind of the clinician =**



**Product =**

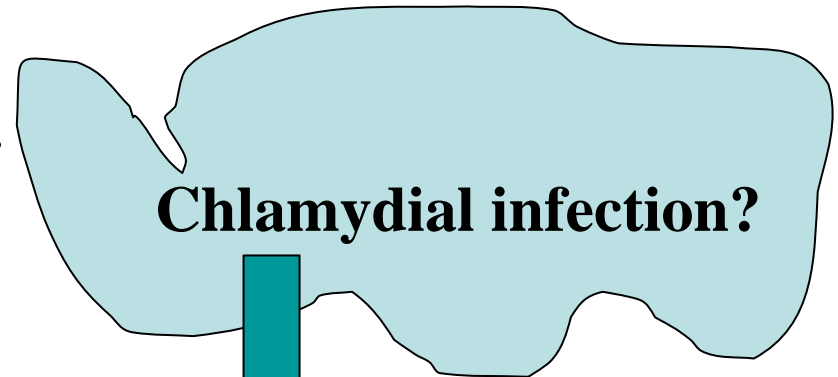
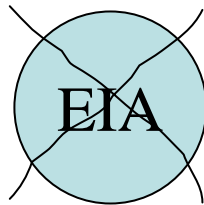


# The concept “request” (2)



# The concept “request” (3)

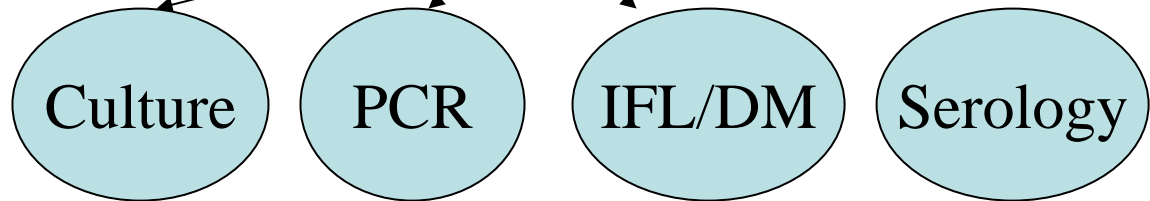
**Concept in the mind of the clinician =**



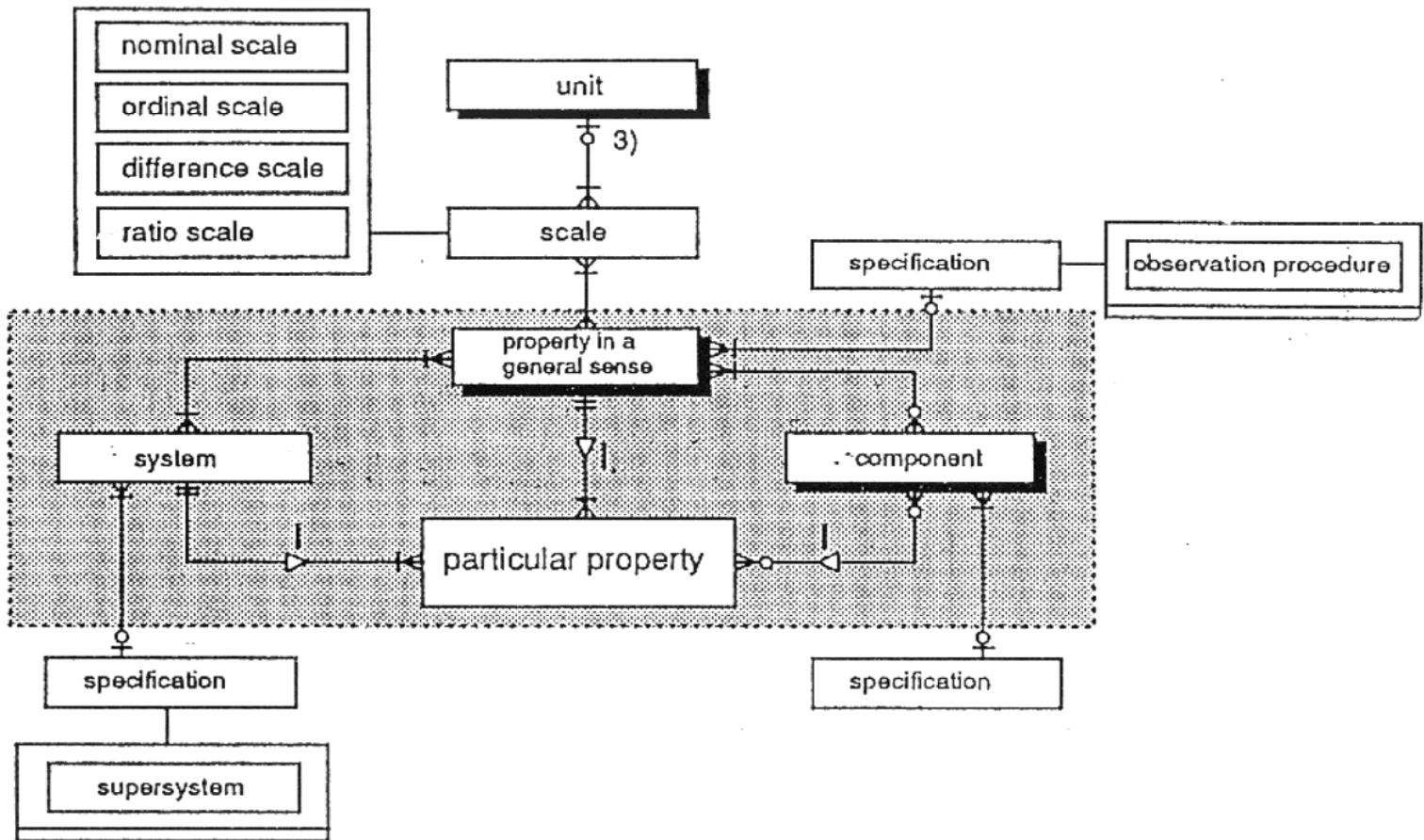
**Product group =**



**Product =**



# Concept scheme ENV 1614



# HL-7 Message (ORU)

Segment

"Request"

"Report"

```
MSHI^~\&IOADDIIDADDII19971122100053IIORU^M01I
EVNIM01I199711181141I
PIDIII661041IIDoe^John^QI
PV1IIINICU^3313^^PCMCII
ORCIREI
OBRII^A000520ILYTES^Serum ElectrolytesI STATI
OBXI1INMI2951-2^Serum Sodium^LNI1138Immol/LIII
OBXI2INMI2823-3^Serum Potassium^LNI113.2Immol/LIII
OBXI3INMI2075-0^Serum Chloride^LNI1114Immol/LIII
OBXI4INMI1963-8^Serum CO2^LNI1124Immol/LIII
```

CE field =  
code element  
for observation  
identifier

LN = LOINC