



TERMINOLOGY BINDING

- Objective: to study of the use of terminologies for **binding** to information models
 - Multi-lingual agreement as a quality indicator of EU-wide semantic interoperability
 - Reflect the distributed development of Detailed Clinical Models



TERMINOLOGY BINDING

- 6 users, 6 countries (5 EU + 1 US)
- 12 models, 101 elements
- Terminologies
 - SNOMED CT
 - ICD + ATC + LOINC + MeSH

The screenshot displays a web-based clinical form titled "HEART FAILURE CLINIC FIRST VISIT SUMMARY". Below the title, there is a note: "Where not otherwise stated, elements are optional ([0..1])." and three buttons: "Collapse All", "Show Annotations", and "Show Paths". The form structure is as follows:

- other_context
 - Risk Factors
 - Tobacco Use Summary [0..*]
 - data
 - Smoking Status (dropdown menu)
 - Current Smoker
 - Current Smoker
 - Quitting
 - Ex-smoker
 - Never Smoked
 - Smoking Details [0..*]
 - Form
 - Typical Smoked Amount [0..*] (input field) ≥ 0 /d (dropdown) OR Upper: 0 Lower: 0 /d (dropdown) OR (dropdown)



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The screenshot shows a web interface for terminology binding. On the left is a sidebar with a list of cases: Emergency room protocol and Trauma registry, Heart Failure registry medications, Smoking status (highlighted), Adverse Reaction Summary Category, COPD PROMs, Headache location, Biological relation, Blood pressure, Diseases under surveillance, Allergy display name (Allergy description), Heart failure symptoms, and Spirometry.

The main content area is titled "Description" and contains the following text:
Extract from SemanticHealthNet Heart Failure summary [template](#).
HEART FAILURE CLINIC FIRST VISIT SUMMARY
Where not otherwise stated, elements are optional ([0..1]).
Buttons: Collapse All, Show Annotations, Show Paths

A tree view shows the following structure:
other_context
└─ Risk Factors
 └─ Tobacco Use Summary [0..*]
 └─ data
 └─ Smoking Status
 └─ Smoking Details [0..*]
 └─ Form
 └─ Typical Smoked Amount [0..*] (with a dropdown menu open showing: Current Smoker, Current Smoker, Quitting, Ex-smoker, Never Smoked)

Below the tree is an "Information model attribute" section with a table:

Attribute Name	Code	Cardinality	URI
Smoking Status	Precood. SNC	3 Partial cover.	229819007 Tobacco use and ex

Below that is a "Value set" section with a table:

Value Set Name	Code	Coverage	URI
Overall meaning of value set	Precood. SNC	3 Partial cover.	365980008 Finding of tobacco u
Current Smoker	Precood. SNC	1 Full coverage	77176002 Smoker (finding)
Quitting	Precood. SNC	1 Full coverage	160616005 Trying to give up sm
Ex-smoker	Precood. SNC	1 Full coverage	8517006 Ex-smoker (finding)
Never Smoked	Precood. SNC	1 Full coverage	266919005 Never smoked tobar



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- Significantly better performance of SNOMED CT for both coverage and concept agreement
- Some basic quality control measures need to be in place
 - Particularly important when post-coordination is used (concept model adherence)
 - Corrections applied, e.g. unapproved attrs. removed
- Little agreement on coverage assessment (Full, Partial, ...)



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- Qualitative analysis ongoing
 - Context-infused concepts
 - Findings vs. Observables, Products vs. Substances
- Even stricter protocol could (must) be applied
 - By tools, templates, etc.
 - E.g. TermInfo rules