

# Semdom 2.0- Release Notes

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This documents describes how the semdom 2.0 (and in extension, 2.1) differs from the previous semdom 1.6.a

- Semdom 2.0 is the information-technical translation, according to the 2RIMVG2 principles of the “codeerhandleiding 2.0 – manuel de codage 2.0” and “codeerhandleiding 2.1 – manuel de codage 2.1”.
- Semdom 1.6.a is the information-technical translation, according to the 2RIMVG2 principles of the “codeerhandleiding 1.6 – manuel de codage 1.6”.

Semdom 2.0 has been created in collaboration with and is approved by the working group (“sectoriële werkgroep / group 1ectorial”).

First this document describes the changes to the model for the individual items.

Next we describe the changes in modeling principles. We have made these changes in order to take into account various suggestions that would make the calculation of scores more simple and allow more/other models in the EPR (electronic patient record). The domain that have changed include:

- Plans
- Dealing with partially specified information in the EPR
- Etc.

At last we describe some other changes.

## Items

### B200

- Minor update
- Act [B200.A1]
  - Aspect [\*000.S12] has become optional, as it should be present over the “collection of acts”.
  - ~~Aspect [B200.S1] (type of care) is now 1..1. Multiple types are no longer allowed. (we revert to the 1.6a situation)~~

- Result [B200.F1] has now an optional aspect [B200.S1] (type of care) 0..\*. Those types may be inferred from the other data present during the care period.
- State [B200.F2] has changed meaning, and been restructured. At least one of the newly added aspects [\*000.S30], [\*000.S31], [\*000.S32], [\*000.S33] is required to make the state valid.
- Added rule [B200.R02]
- Added the values [2001] and [2002] to the datatype [B200.T1] (is used in the act [B200.A1] and fact [B200.F1] in the aspect [B200.S1] (type of care). Both allow scoring as if the value [2000] was given.

### B300

- No major changes
- Fact [B300.F1] has been renamed to “Resultaat van uitgevoerde ~~intermittente~~ sondage”

### B400

- Minor update
- Act [B400.A1]
  - Aspect [\*000.S12] has become optional, as it should be present over the “collection of acts”.
  - ~~Aspect [B400.S1] (type of care) is now 1..1. Multiple types are no longer allowed. (we revert to the 1.6a situation)~~
- Result [B400.F1] has now an optional aspect [B400.S1] (type of care) 0..\*. Those types may be inferred from the other data present during the care period.
- State [B400.F2] has changed meaning, and been restructured. At least one of the newly added aspects [\*000.S30], [\*000.S31], [\*000.S32], [\*000.S33] is required to make the state valid.
- Added rule [B400.R02]

### B500

- Major update, please review new model in detail.
- Act [B500.A1], [B500.A2], [B500.A3], [B500.A4], [B500.A5] have been replaced by a single act [B500.F9] and fact [B500.F9], each with an aspect [B500.S1], that determines the kind of activity.
- Fact [B500.F1] has been removed, as this condition is no longer required.
- Fact [B500.F2] has been added to justify the need of the activities.

### C100

- Major update, please review new model in detail.

### D100

- Major update
- Act [D100.A1]
  - Aspect [\*000.S14] has been replaced by aspect [D100.S14].
  - Aspects [D100.S1] and [D200.S1] are no longer required
  - Aspect [\*000.S18] has been replaced by fact [D100.F02].
  - Aspect [\*000.S26] has been added.
- Result [\*000.F01] has been replaced by fact [D100.F01] with essentially the same meaning; it is specific for this item and allow to differentiate its usage with other items.

- State [D100.F1] is deleted, as it is no longer required.
- Rules have changed.

### D300

- Minor update
- Act [D300.A1]
  - Aspects [D300.S1], [H000.S2], [H000.S3] are now mandatory at the level of a collection of acts (not at the act level itself).
  - Enumeration values for [D300.S1] have changed according to the coding manual.

### D400

- See Hxxx

### Exxx

- Major update, please review new model in detail.
- The concept of “PLAN” has been replaced by the concept of “POLICY”. This implies adding a fact [\*000.F40] that identifies a policy through its aspect [\*000.S40], that is referenced by other acts/facts of this item.
- Fact [E000.F1] has been replaced by fact [E000.F41], to make the numbering more consistent. Fact [E000.F41] has a text value with an aspect [\_ScaleCode] to hold the name of the scale used.
- Fact [F400.F1] is deleted, as this notion is no longer required.
- State [F400.F01] added.
- As, according to the facts, a policy is not required for score 1, aspect [\*000.S40] has become optional for act [E000.A1] and fact [E000.F41].
- Act [E000.A1] has the following additional aspects: [\_EffectiveExecutionDurationTimeSpan], [\*000.S19].

### F100

- Major update
- Act [F100.A1]
  - Aspect [\*000.S14] has been replaced by aspect [F100.S14].
  - Aspects [D100.S1] is no longer required
  - Aspect [\*000.S18] has been replaced by fact [F100.F02].
- Result [\*000.F01] has been replaced by fact [F100.F01] with essentially the same meaning; it is specific for this item and allow to differentiate its usage with other items.
- Rules have changed.

### F300

- Minor update
- Act [F300.A]
  - Aspect [F300.S7] is no longer necessary.
  - Aspect [\*000.S12] has become optional, as the activity is sufficiently described by the other aspects.
  - Enumeration lists for [F300.S1] and [F300.S2] have been updated.

## F500

- Major update, please review new model in detail.

## G100

- Minor update:
  - The aspects [G100.S41], [G100.S42] and [G100.S43] are now optional in the fact [G100.F4].
- Minor update
- Act [G100.A1] has been added to capture the care.
- Fact [G100.F1] has been added. A valid fact [G100.F1] with a value of “true” must be active in order to validate the act [G100.A1] and the facts [G100.F1], [G100.F2], [G100.F3] and [G100.F4].
- Added aspects [G100.S23], [G100.S24], [G100.S25] and [G100.S26] to the fact [G100.F2].

## G200

- Minor update
- Fact [G200.F1] has been renamed, essentially with the same meaning.

## G300

- Major update, please review new model in detail.
- The concept of “PLAN” has been replaced by the concept of “POLICY”. This implies adding a fact [\*000.F40] that identifies a policy through its aspect [\*000.S40], that is referenced by other acts/facts of this item.
- Deleted act [\*000.S20] (education session)
- Fact [G300.F41] (interpretative van de glycemiewaarde) has been added. It has a text value with an aspect [\_ScaleCode] to hold the name of the scale used.

## G400

- Major update, please review new model in detail.
- The concept of “PLAN” has been replaced by the concept of “POLICY”. This implies adding a fact [\*000.F40] that identifies a policy through its aspect [\*000.S40], that is referenced by other acts/facts of this item.
- The type of blood parameter [G400.S1] has been added (0..\*) to all acts/facts. Type inference is allowed.

## G500

- Minor update
- Act [G500.A1] has been renamed with essentially the same meaning.
- Result [G500.F1] has been added to capture the coding conditions.

## Hxxx

- Major update, please review in detail
- Act [H000.A01]
  - Aspect [H000.S0] has become [1..\*]:
    - mandatory. Previously, when absent it was assumed equal to [H000.S2]; now, you have to make this assumption explicitly.

- Multiple. It is allowed to specify all product-ID's in a perfusion (if prepared outside of the ward).
- Aspect [H000.S6] has been added, to indicate that this value is not part of [H000.S0] or [H000.S2]. It is optional though.
- Aspects [H000.S2] and [H000.S3] have been renamed with essentially the same meaning.
- Enumeration lists for [H000.S1] and [H000.S5] have been updated according to the coding manual.
- Aspects [H000.S7, [H000.S9]and [H000.S8] have been added: know that a product is part of a dilutant (product and optionally the container)and who added the product to the dilutant.
  - This is an alternative way of telling the constitution of a perfusion.
- Rules [H000.R40] and [H000.R41] replace rule [H000.R4]

## I100

- Minor update
- Fact [I100.F1] has been renamed, essentially with the same meaning. It has now a text value with an aspect [\_ScaleCode] to hold the name of the scale used.

## I200

- Minor update
- Act [I200.A1] has been renamed, essentially with the same meaning.
  - Aspect [I200.S01] has been added.
  - Aspect [\*000.S12] is now mandatory at the level of the collection of acts (not at the level of each individual act).

## K100

- Minor changes
- Fact [K100.F1] has been renamed, essentially with the same meaning.

## K200

- Minor changes
- Aspect [\*000.S12] of act [K200.A1] is now mandatory at the level of the collection of acts (not at the level of each individual act).

## K300

- Minor changes
- [K300.A1].
  - Aspects [K300.S2] and [K300.S7] are no longer required.
  - Aspect [K300.S3] is new.
  - Aspect [K300.S1] has new, additional values. Value [61] does not allow for scoring any more.

## 2.1 update

- Minor changes

- The existing act [K200.A1] now also applies to the calculation of K300.

Since the update for the 2.1 ‘codeerhandleiding’ can be implemented as a minor change this way. We decided to update the calculator 2.0 to allow the new scoring of K300 for registration periods starting on 2021-01-01. Typically, no changes to the mappings are required to support this change.

#### Lxxx

- Major update, please review new model in detail.
- Act [L000.A2]
  - has been renamed to “Zorg of opvolging aan wonde, huidlaesis, verband en/of materiaal”.
  - the role of aspect [L000.S3] (location – identification) has been replaced by [\*000.S27] (care object). Use this aspect to identify a wound or laesis: you could still use the location to identify the wound.
  - the enumeration values of aspect [L200.S1] (type of care) have been aligned with the coding guidelines. Use now code [2000] also for “[C] treatment laesis”.
  - Aspect [L000.S9] has been removed, and is now part of [L000.F1]
  - Aspect [L000.S8] has become optional. It is not required for scoring L100. Is should be present for scoring L200 till L500.
- New fact [L000.F1] (observation) is the generalization of [L000.A2].[L000.S9], that has been replaced.
- Fact [L000.F2]
  - Has become a result instead of a state.
  - Has been renamed, with essentially the same meaning
  - the role of aspect [L000.S3] (location – identification) has been replaced by [\*000.S27] (care object). Use this aspect to identify a wound or laesis: you could still use the location to identify the wound.
  - the enumeration values of aspect [L000.S10] (type of wound or laesis) have been aligned with the coding guidelines, as is the title of the aspect.
  - Aspect [L000.S1] (zone) has become optional, but is still mandatory for laesis (rule [L000.R05]).
  - Aspect [L000.S10], changed cardinality to 0..1 (was 1..1)
  - Aspect [L000.S5], changed cardinality to 0..\* (was 1..\*)
- Rule [L000.R05]
- Added rule [L000.R06]

#### M100

- Major update.
- Act [M100.A1] has been renamed. Aspect [\*000.S12] has become mandatory at the level of the collection of acts (no longer at each individual act).
- Facts [M100.F1], [M100.F2], [M100.F3] are not results and have accordingly been replaced by aspect [M100.S2] of act [M100.A1]. Rule [M100.R1] has been removed.

#### N100

- Major update

- Fact [N100.F1] replaces aspect [\*000.S03] of act [N100.A1]
- Aspect [H000.S2] of act [N100.A1] is no longer required.

## N200

- Major update, please review new model in detail.
- Aspect [\*000.S27] (care object) has been added as an (optional) aspect that allows to uniquely identify the access port.
  - If absent, the combination of the former aspects [N200.S1], [N200.S2], [N200.S3], [N200.S4] is still used as before.
  - If present, use the new fact [N200.F2] to specify the characteristics of the access port ([N200.S1], [N200.S2], [N200.S3], [N200.S4]). You do not need to repeat those characteristics with the other parts.
- Aspect [\*000.S01] (result) of act [N200.A01] has become a fact [N200.F3], allowing to specify the result in a separate act.
- State [N200.F2] is no longer required according to the coding conditions.
- Enumeration list for [N200.S1] has been updated according to the coding manual.

## N300/N400/N500

- No major changes

## N600

- No major changes

## N700

- No major changes

## P100

- Major update, please review new model in detail.
- The concept of “PLAN” has been replaced by the concept of “POLICY”. This implies adding a fact [\*000.F40] that identifies a policy through its aspect [\*000.S40], that is referenced by other acts/facts of this item.
- The model for act [P100.A1] has been refined, but has basically kept [P100.S1] (types of activity). The numbering of types has changed to reflect the scores of the coding guide 2.0.

## Q100

- Minor change
- Fact [Q100.F1] added.

## R100

- Major update, please review new model in detail.
- All parts [R110.A1], [R120.A1], [R120.F1], [R130.A1], [R130.F1] are replaced by a new act [R100.A1] and fact [R100.F1].
  - [R100.F1] is modelled after [R130.F1].
  - [R100.A1] is modelled after [R130.A1]. Its aspects [R100.S04], [R100.S07], [R100.S02], [R100.S05], [R100.S03] concern the fact and remain only with [R100.F1].
- Aspect [\*000.S27] (care object) is added to both act [R100.A1] and fact [R100.F1].





- Act [W100.A1] has new (optional) aspect [W100.S2] and according rule [W100.R40].
- Fact [W100.F1] has new aspect [W100.S1]. The fact must be executed by a nurse.

#### W200

- Minor changes
- Fact [W200.F4] has been added

#### W300

- No major changes

#### W400

- Minor changes
- Fact [W400.F4] has been added. Other facts have been renamed, with essentially the same meaning.

#### W500

- Minor changes
- Added aspects [\*000.S12], [\*000.S19] and [W500.S1]

#### Z100

- Minor change
- Fact [Z100.F1] is now a text value. The scale is encoded as aspect [\_ScaleCode]

#### Z200

- Minor change
- [\_ContextActSys/Ref] has become optional, as [Z200.S2] is an alternative to identify the medical act. Rule [Z200.R1] has been updated accordingly.
- Aspect [\*000.S16] added to act [Z200.A1]

#### Z300

- Major changes
- Act Z300.A1: aspects [Z300.A1] and [\*000.S12] have been added.
- Fact Z300.F1: new aspects have been added to capture the different specialties of caregivers.
- Rule [Z300.R1] has been replaced by rule [Z300.R40]. Rule [Z300.R40] has been refined (changed semantics).

#### Z400

- Minor change
- In act [Z400.A1] has aspect [Z400.S08] been split into [Z400.S08] and [Z400.S09]

## Modelling principles

“Clinical policy” replaces the notion of “plan”

In the previous semdom’s a PLAN was a specifically modelled element, associated with an act and loosely coupled to the facts (evaluation). The problem here is that the sending system has to treat a PLAN in a special way when encoding references to a PLAN in the XML data transfer files.

In semdom 2.0 we replace the notion of PLAN with a notion of POLICY. A Policy is modelled as an fact [\*000.F40]. The key is the ID of the policy ([\*000.S40]), which must be unique to identify the policy for an intake. This ID will typically be:

- (typically in case the policy is a unique plan for this patient) the ID of the database record identifying this policy.
- (or when using standard care plans) a default constant representing a reference to the standard plan.

For a POLICY is defined:

- [\*000.S55] (validy period of the POLICY). This is the max duration after which the POLICY must be re-considered. i.e. after which a new fact [\*000.F40] is required.
- [\*000.S56] (re-evaluation interval in the POLICY). This is the max duration after which an activity in the POLICY needs to be evaluated.
- [\*000.S41] (type of POLICY). This specifies what other information (nursing problems, goals, planned activities, ...) must be specified for this POLICY in order to make it a valid policy.

The advantage of using POLICY over PLAN, is that a POLICY is expressed as a standard fact. Special treatment is no longer necessary. The standard extraction mechanisms and mappings can be used for POLICY too.

### Care object [\*000.S27]

For some items we have introduced the notion of “care object” [\*000.S27]. Examples are access port, wound, etc...

- If the EPR is able to identify this “care object” through a unique ID, this ID can then be used to connect acts and facts referencing the same ID.
- If the ID is unknown, in most cases, you can leave it blank. Then it is the responsibility of the calculation engine to make the most appropriate decision of how to connect those related acts and facts.

### Collection of acts and facts

A lot of aspects of acts and facts have become optional, although the underlying information is still required by the coding manual.

In semdom 2.0 it is understood that all acts (and fact) of a care period can be taken together in a “collection of acts/facts”. It is then sufficient if those aspects are present for at least one act/fact in the collection.

### Results have become first-citizen

In semdom 2.0 all results are modelled as independent results. In the former semdoms for some items, results were modelled as aspects of an act.

The semdom 2.0 model allows better to work with results that are registered in the EPR at a different place and hence independently from the registration of the act.

## Type inferencing

When registering related activities at separate locations in the EPR, it is possible that specific information is only available in one of the locations. Typically is the type of activity known when registering the act, but unknown when registering the result (the result screen is used for several activities). We have loosened the semdom 2.0 by making this information optional. A calculation engine can then make reasonable assumptions on the missing information, based on the values of that information element present in the collection of acts or facts.

## State-values have become “Boolean”

In semdom 2.0 the value of a state is typically a Boolean.

- The state is valid if its value is “true” and all the conditions are satisfied (e.g. presence of certain aspects, typically justifying the reason why the state is “true”).
- If a mandatory condition is not satisfied, the value of the state is considered “false”.

Using this model, it becomes possible to set the state to “false” for a sub-interval during the care period.

In the previous modelling (semdom 1.6a and before), a state could become “true” (valid), but once valid, there was no mechanism to say that it is no longer valid. Suppose you say at a given point in time  $f$  that state  $s$  is valid for period from  $f$  till  $t$ . If it turned out later at time  $t_2$  (where  $f < t_2 < t$ ) that the state is no longer valid as from  $t_2$ , you had to change the act/fact registered at time  $f$ , making it last till  $t_2$  instead of  $t$ . Now you can just register at time  $t_2$  that the state is not valid any more. This means that it suffices now to send information about the state at the moment the state changes; you do no longer need to change the original registration of the state.

The same holds for some result-values.

## Start-verify-stop [\*000.S19]

Wherever a duration is required, semdom20 allows both [\*000.S19] and [\_EffectiveExecutionDurationTimespan] to specify this duration. See rules [STARTSTOP.R40], [STARTSTOP.R41] and [STARTSTOP.R42], for how a duration is calculated.

## Other changes

- Rules have been renumbered, such that similar rules for different items have similar numbers.
- The cardinality of aspect [\*000.S12] has – for all parts – been changed from [0..1] to [0..\*] and from [1..1] to [1..\*]. This is semantically equal, but imposes less restrictions on how the EPD can deliver the required data.
- We renamed “registration time span” into “care period”.

## Change History

### Update 14.06.2018 & 14.08.2018

- B200: act [B200.A1], deleted aspect [B200.S1]
- B400: act [B400.A1], deleted aspect [B400.S1]
- Exxx: act [E000.A1], added aspects: [\_EffectiveExecutionDurationTimeSpan], [\*000.S19].
- Lxxx: act [L000.A2], aspect [L000.S8] has become optional

- V100/V200: state [V100.F2] need not be registered by a nurse any more
- W100: act [W100.A1], added optional aspect [W100.S2]
- Z300: updated rule [Z300.R40]

#### Update 5.06.2019

- E400: Added state [E400.F01]

#### Update 9.11.2023

- Added aspects [G100.S23], [G100.S24], [G100.S25] and [G100.S26] to the fact [G100.F2].