# Canadian Clinical Drug Dataset

Work Instructions Master File

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| --- | --- |
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| Accepted Changes into this version: | Enhanced section on Describing Ingredient Substances  New sections on using the Drupal tool  New sections on using the Combination Table as an Override function  New sections on Use of Brackets in TM and NTP formal names  Complete review and revision of Work Instructions document |

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## Purpose

This Work Instructions document is a supporting document to the Editorial Guidelines for the CCDD. It contains more detail and more explanation for the population of the CCDD, based on different types of products and different therapeutic areas. It should be used to describe patterns of information for various types of products and elaborate on decision processes, particularly for challenging areas where the Team has discussed options and made decisions on which option to follow. Decisions about individual concepts should not be documented in Work Instructions; these should be described in the work relating to those products (e.g., monthly spreadsheets or customer queries).

The Work Instructions also contains directions on how to maintain the various supporting data (in addition to the DPD) that goes into the generation of the CCDD on a monthly basis.

## Audience

This document is for use by the CCDD Authoring and Quality Assurance Team: the medicinal product and terminology subject matter experts that manage the TM, NTP and MP concepts and their descriptors in the CCDD.

It may also be used as a reference by the CCDD Technical Team who undertake the concept generation for the CCDD.

## Relationship to Editorial Guidelines

Sometimes it can be difficult to decide whether to put information into Editorial Guidelines or into Work Instructions. The Editorial Guidelines describe the overall model of the CCDD and the general principles for its population. Work Instructions give more detail on how to apply those general principles in specific product patterns to promote clarity and consistency. They also document when less than ideal solutions must be adopted and have notes for future work to improve those resolutions.

## How to use and maintain these Work Instructions

This is a living document and will grow and develop as the CCDD grows and develops. All those responsible for the authoring and maintenance of the concepts that make up the CCDD are encouraged to use the Work Instructions regularly and to make additions to the document as new situations arise. However, there should be regular review of additions and changes by the whole Team, to increase shared knowledge and understanding.

Additions should be made in red text with the author’s initials and date following the entry. Team review on a monthly or bimonthly basis should discuss and confirm additions, at which point they are changed to the normal text colour and the document up-versioned. [JMJ 19June2018]

It is acceptable to add a placeholder for a topic into the Work Instructions, with or without brief notes, and to return to complete the entry at a later point.

# Describing Ingredient Substances

## When to use INN USAN CSD (this is covered briefly in Editorial Guidelines)

In general, the ingredient name in CCDD will be derived from the ingredient name used in DPD for a given product. Typically, DPD ingredient names are INNs, USANs or CSD names. Occasionally, it has been necessary, for consistency or other reasons, to use an ingredient name in CCDD that is different from that found in DPD. When this occurs, the CCDD team engages with the DIN management group and related departments as appropriate to harmonize terminology for the ingredient, though this is not always feasible. Resources such as [G-SRS](https://tripod.nih.gov/ginas/app), [INN](https://mednet-communities.net/inn/db/searchinn.aspx), [dm+d](https://apps.nhsbsa.nhs.uk/DMDBrowser/DMDBrowser.do) and [RxNorm](https://www.nlm.nih.gov/research/umls/rxnorm/sourcereleasedocs/rxnorm.html) are helpful for research purposes.

Examples of differences in ingredient name between DPD and CCDD (bolded names indicate inconsistency in DPD names for identical or closely related substances):

|  |  |  |
| --- | --- | --- |
| **DPD ingredient name** | **CCDD TM** | **CCDD NTP ingredient name** |
| **macrogol**  **polyethylene glycol 3350**  polyethylene glycol 400 | polyethylene glycol  polyethylene glycol  polyethylene glycol | polyethylene glycol 3350  polyethylene glycol 3350  polyethylene glycol 400 |
| **hyoscine butylbromide**  **scopolamine hydrobromide** | scopolamine butylbromidescopolamine hydrobromide | scopolamine butylbromide  scopolamine hydrobromide |
| mineral oil | mineral oil heavy  mineral oil light | mineral oil heavy  mineral oil light |
| aluminum hydroxide-magnesium carbonate-co dried gel | aluminum magnesium hydroxide carbonate | aluminum magnesium hydroxide carbonate |
| **RECOMBINANT COAGULATION FACTORS (note mixture of naming conventions in DPD)** | | |
| antihemophilic factor (recombinant BDD) FC fusion protein | efmoroctocog alfa | efmoroctocog alfa |
| antihemophilic factor (recombinant) | octacog alfa | octacog alfa |
| turoctocog alfa | turoctocog alfa | turoctocog alfa |
| **nonacog gamma** | nonacog gamma | nonacog gamma |
| **coagulation factor IX (recombinant)** | nonacog alfa | nonacog alfa |

## Enalapril

### Background

Enalapril is described differently among manufacturers (and thus in DPD), with respect to the precise ingredient/basis of strength substance and strength, e.g., enalapril sodium or enalapril sodium (enalapril maleate) with strengths of 2 mg, 4 mg, 8 mg or 16 mg, *or* enalapril maleate with strengths of 2.5 mg, 5 mg, 10 mg or 20 mg. The CCDD team investigated the issue and provided a rationale to TPD for standardizing to a precise ingredient and basis of strength substance of enalapril maleate. Of note, dosing recommendations and product labels universally reference the strength of enalapril maleate (2.5, 5, 10 or 20 mg), and therefore it is clinically the most relevant, consistent and safe option. While this change was successfully instituted for some products in DPD, some brands remain in DPD with a basis of strength substance of enalapril sodium, with corresponding strengths of 2, 4, 8 or 16 mg.

### Enalapril in CCDD

For consistency, products whose basis of strength substance is not listed as enalapril maleate will be managed via the Combination Products (or override) table. This includes (where necessary) multi-ingredient formulations that also contain hydrochlorothiazide.

Summary table

|  |  |
| --- | --- |
| **DPD ingredient/strength** | **CCDD Process** |
| enalapril maleate 2.5 mg | Generates naturally as enalapril maleate 2.5 mg oral tablet |
| enalapril sodium 4 mg | Entered into Override (Combination Products) table with an NTP of:  enalapril maleate 5 mg oral tablet |
| enalapril sodium (enalapril maleate) 8 mg | Entered into Override (Combination Products) table with an NTP of:  enalapril maleate 10 mg oral tablet |
| enalapril sodium 8 mg and hydrochlorothiazide 25 mg | Entered into Override (Combination Products) table with an NTP of:  enalapril maleate 10 mg and hydrochlorothiazide 25 mg oral tablet |

## Hyoscine/scopolamine

### Background

Hyoscine and scopolamine are synonyms. The substance itself is too old to have a USAN or INN. In DPD, “hyoscine” is the root name used for the butylbromide salt (e.g., BUSCOPAN; DIN 00363839), which is used for symptomatic relief of gastrointestinal or genitourinary smooth muscle spasm. “Scopolamine” is used for the hydrobromide salt (e.g., SCOPOLAMINE HYDROBROMIDE INJECTION; DIN 02242810), which is used as premedication in anaesthesia and in end-of-life care for reduction of excessive respiratory secretions. In LNHPD, the ingredient name for TRANSDERM V patches (labelled as scopolamine 1.5 mg) is 6beta,7beta-epoxy-3alpha-tropanyl S-(-)-tropate, which is used for motion sickness.

For the reasons that i) CCDD is largely an interchange terminology; ii) it is not possible to add an identifier for synonymous ingredient names in CCDD; and iii) having 2 ingredient names for the same substance would be misleading, it was decided that they would be standardized to one term. Either hyoscine or scopolamine would be an acceptable choice as the standard term. Because scopolamine hydrobromide injection is labelled, known and prescribed as scopolamine, it was decided that the safer option would be to choose scopolamine as the consistently applied term for CCDD. It was further decided that each salt would have its own TM, as they are substantially different in clinical effects and use. Hyoscine butylbromide is transformed via the ingredient stem table to scopolamine butylbromide, and scopolamine hydrobromide generates naturally.

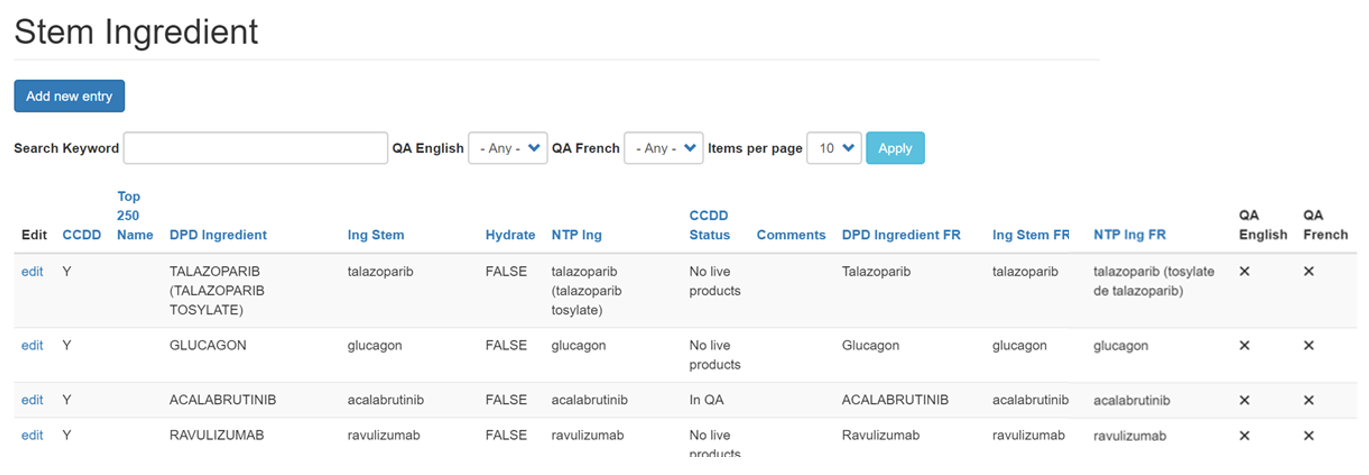
### Hyoscine/Scopolamine in CCDD

|  |  |
| --- | --- |
| **DPD Ingredient** | **CCDD TM/NTP Ingredient** |
| hyoscine butylbromide | scopolamine butylbromide |
| scopolamine hydrobromide | scopolamine hydrobromide |

# Ingredient Stem Table

The Ingredient Stem Table is stored in GitHub [<https://github.com/hres/formulary/tree/folder_reorg>] but is edited through the internal Health Canada interface tool [<https://ims8.hres.ca/ccdd/>]. It is a comma separated file (.csv) but can be opened through the GitHub tooling using Excel. However, DO NOT modify the file using Excel; ALWAYS USE the HC tool (Drupal tool) as this preserves the integrity of accents in the French concepts. Please see Editing the Ingredient Stem and Other Source Files for instructions on how to edit source files.

There are 11 data columns, as shown below in blue font:



**CCDD** is a flag that is used to identify which TMs will be included in the generation of QA Release files. Y = included; blank = not included

**top250name** is the name of the ingredient from the IMS top 250 ingredients that was used for the initial releases of the CCDD. This is not used in the generation of CCDD files.

**dpd\_ingredient** is the name of the ingredient as found in the DPD. Generation of the CCDD files is based on a string match to extract ingredients from the DPD, so it is important that the name appear **exactly** as it is captured in the DPD, including case sensitivity (generally all caps).

**ing stem** is the name of the TM as it will appear in the CCDD files. It excludes the salts or other modifiers of the ingredient (with some exceptions).

**hydrate** is the field that that is used by the generation team to exclude waters of hydration from the ntp formal name. There are 2 possible values:

TRUE – the DPD name includes waters of hydration and should be excluded from the NTP formal name

FALSE – the DPD name does not include waters of hydration

The waters of hydration will be include in the MP formal name.

**ntp\_ing** is the name of the ingredient as it will appear in the NTP formal name. The name should include the salts and modifiers but not the solvates or waters of hydration (except in special cases – see below).

**CCDD Status** is a field used to track whether all, some or none of the products that have this substance as an active ingredient substance are released into CCDD, for tracking and maintenance purposes. Uses “Standard Text for CCDD. Status in the Ingredient Stem Table” to aid sorting and analysis.

**Comments** is a field that can be used for additional information about the ingredient substance and its use in CCDD, for tracking and maintenance purposes. It also uses “Standard Text for CCDD. Status in the Ingredient Stem Table” but free text may also be appropriate.

**DPD Ingredient FR** is the name of the ingredient as found in the DPD in French. Note this column (French ONLY) can be modified without affecting the generation, to ensure that the correct name/spelling appears in the generation for hydrates/solvates (where the ingredient name for the MP is taken from this column). When changes need to be made, coordinate with DPD to correct it there as well.

**Ing Stem FR** is the corresponding French description of the English TM as it will appear in the CCDD files. It excludes the salts or other modifiers of the ingredient.

**NTP ing FR** is the corresponding French description of the English NTP ingredient as it will appear in the French NTP. The name should include the salts and modifiers but not the solvates or waters of hydration.

**Edit** and **QA English/French** columns are functional columns that allow editing and tracking of QA. An “X” indicates QA is pending; a check mark (√) indicates QA is complete. (Currently not in use)

## Further Notes on Solvates and Hydrates in the NTP

The Editorial Guidelines state that “when generating the NTP, the hydration/solvation information would be disregarded in the precise ingredient substance. This provides a smaller, more clinically acceptable set of NTPs for prescribing but continues to maintain the granular detail of actual manufactured products in the MP”.

The ntp\_ing field in the Ingredient Stem table described above will have the substance name for the NTP which should not have *any* solvation/hydration information. Some substances have both a solvate and a hydrate; both should be removed for the NTP precise ingredient substance (which usually means that the NTP precise ingredient substance is equivalent to the basis of strength substance.

**For example:**

DIN 02278499 DOM-AZITHROMYCIN (azithromycin (azithromycin monohydrate hemiethanolate) 250 mg oral tablet) DOMINION PHARMACAL

The precise ingredient substance is both a monohydrate and a hemiethanolate – for every 2 azithromycin moieties there are 2 water molecules and one ethanol molecule acting as solvates. However, the NTP will disregard both of these as they have no clinical significance, meaning that the ntp\_ing should be (just) “azithromycin” as shown below:



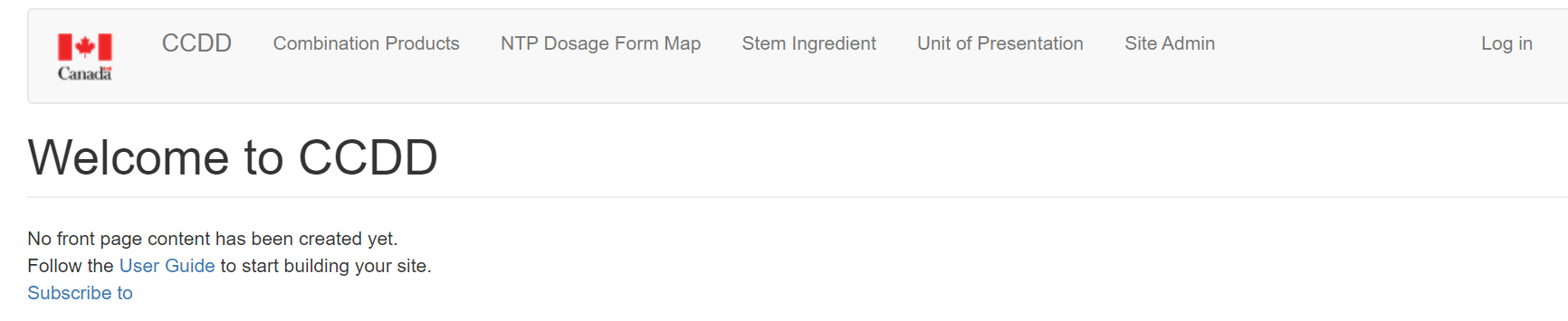
This will give an NTP of “azithromycin 250 mg oral tablet” to be associated with the DOM-AZITHROMYCIN product.

Very occasionally, knowledge of the hydrated substance is important, for example where it forms part of the name of the substance itself. Currently there are at least 2 examples where the hydration information remains in the substance name in the NTP as well as in the MP. These are:

* chloral hydrate
  + with an NTP of “chloral hydrate 500 mg per 5 mL syrup” (and indeed a TM of “chloral hydrate)
* The sacubitril-valsartan complex, with NTPs of pattern
  + sacubitril (sacubitril valsartan sodium hydrate complex) 24 mg and valsartan (sacubitril valsartan sodium hydrate complex) 26 mg oral tablet

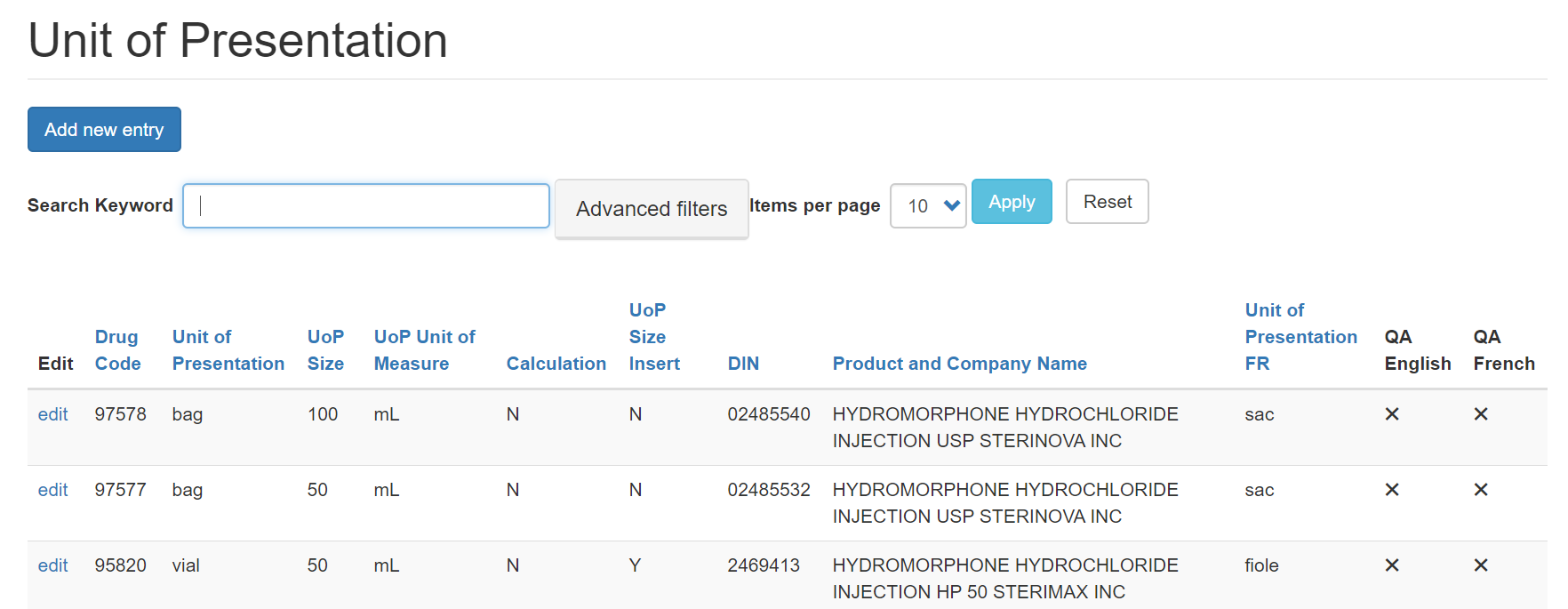
# Editing the Ingredient Stem and Other Source Files

As described above, the Ingredient Stem table and all other source tables are edited through the Health Canada interface tool, also called the Drupal tool (<https://ims8.hres.ca/ccdd/>). From the home page (shown below), the following tables can be accessed by clicking on their name in the navigation bar at the top: Black List (*still to be added*), Combination Products (also known as the override table), NTP Dosage Form Map, Stem Ingredient and Unit of Presentation. The Site Admin tab allows the maintenance of the drop down lists found in each of the data entry pages (more on this below).



## Navigating the Drupal Tool

Using the Unit of Presentation Table as an example, we can see that we have a number of options on this page. The table data in this view is read-only.



**Add new entry** – selecting this box will bring you to a new page where you can enter a new row of data

**Search Keyword** – keyword search box for searching within the current table. Launch the search by hitting “**Apply**” or by simply hitting “enter” on the keyboard after entering a search term in the box.

**Advanced filters** – opens advanced search box (see Searching in the Drupal Tool)

**Items per page** – options include 10, 25 and 50 items per page

**Apply** – applies the selected search, filter or page option

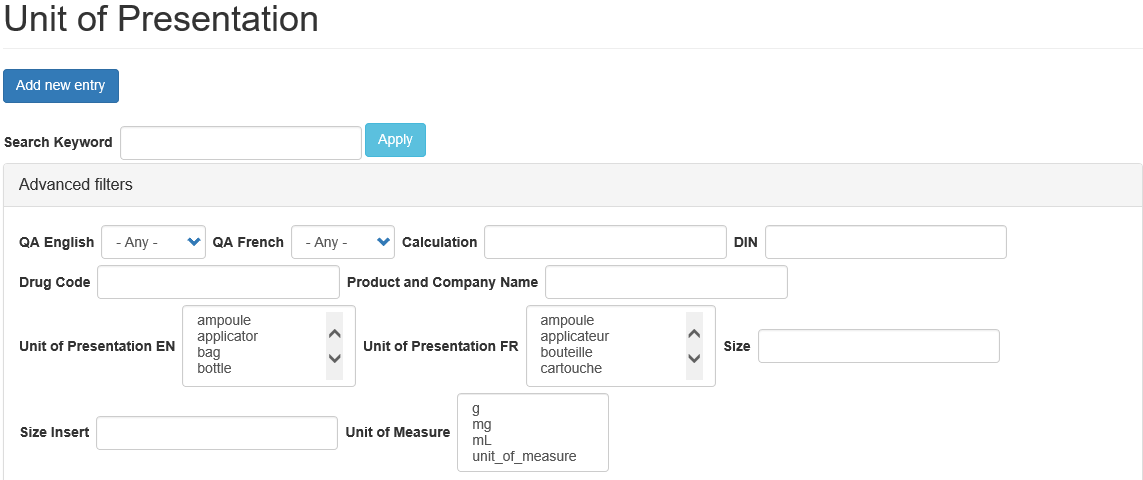
**Reset** – sets all settings to default and erases the Search box

**Column Headings in blue font** – clicking on a blue column header sorts the table in alpha order by that column

**Edit** – links to a new screen with data (for a given row) in a modifiable format (see Editing in the Drupal Tool)

## Searching in the Drupal Tool

The ‘Advanced filters’ button allows the capability for an advanced search based on each of the available columns (or fields). This will be unique to each source table in Drupal.

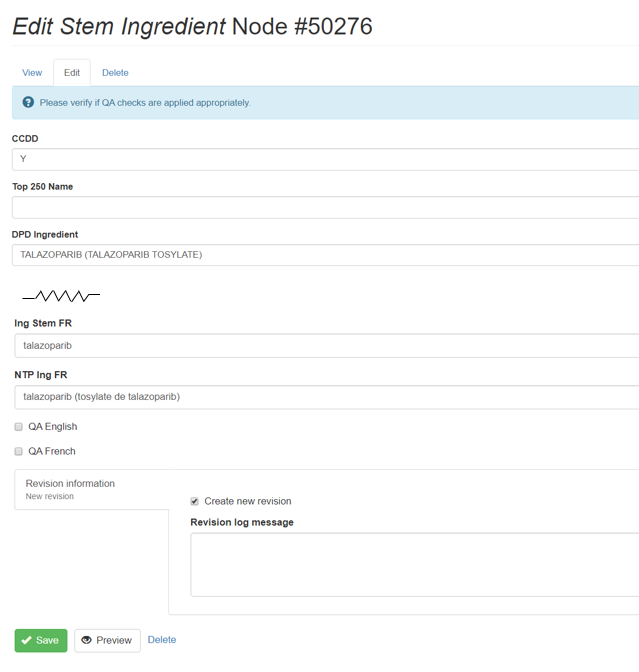


**QA English/QA French** – Options include “True”, “False” or “Any”. True will filter on entries with a checkmark, whereas, False will filter on entries with an “X”

## Editing and Reviewing in the Drupal Tool

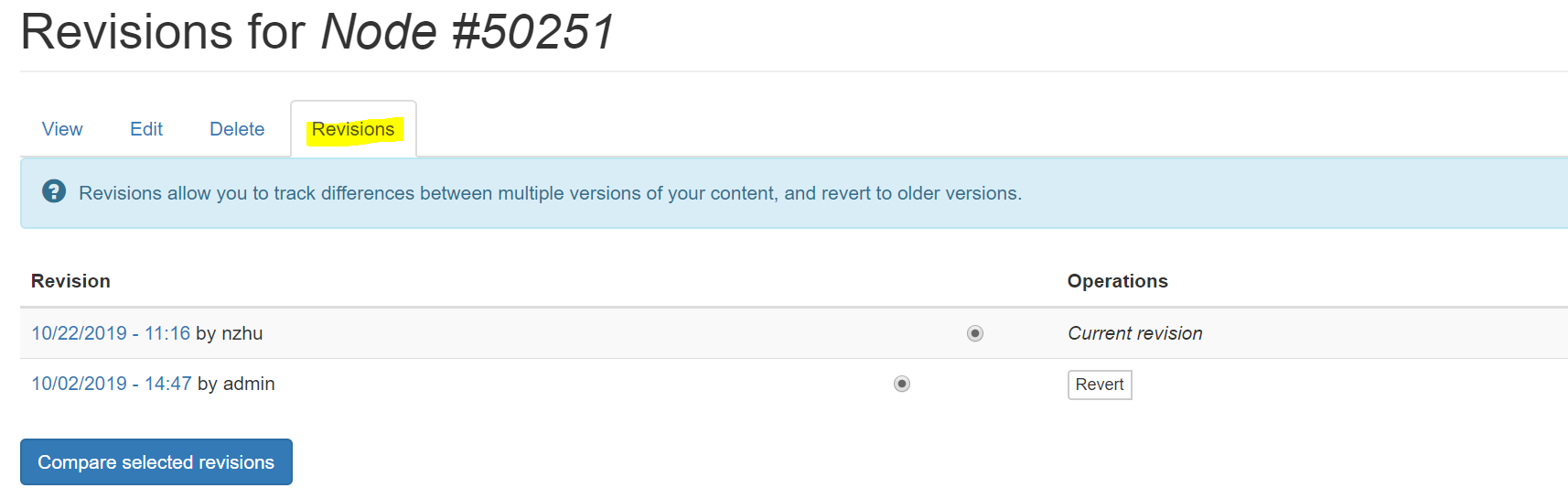
Selecting “edit” for a given row brings us to an editing page where each column (or cell in the Excel table) is shown as a field box. These are free text boxes unless a drop down box exists.

Once data entry is complete, leave the QA English and French check boxes blank (this will indicate that QA is pending), leave an (optional) revision log message and hit SAVE. If you want to leave the editing page without saving your changes, hit the browser’s Back button.



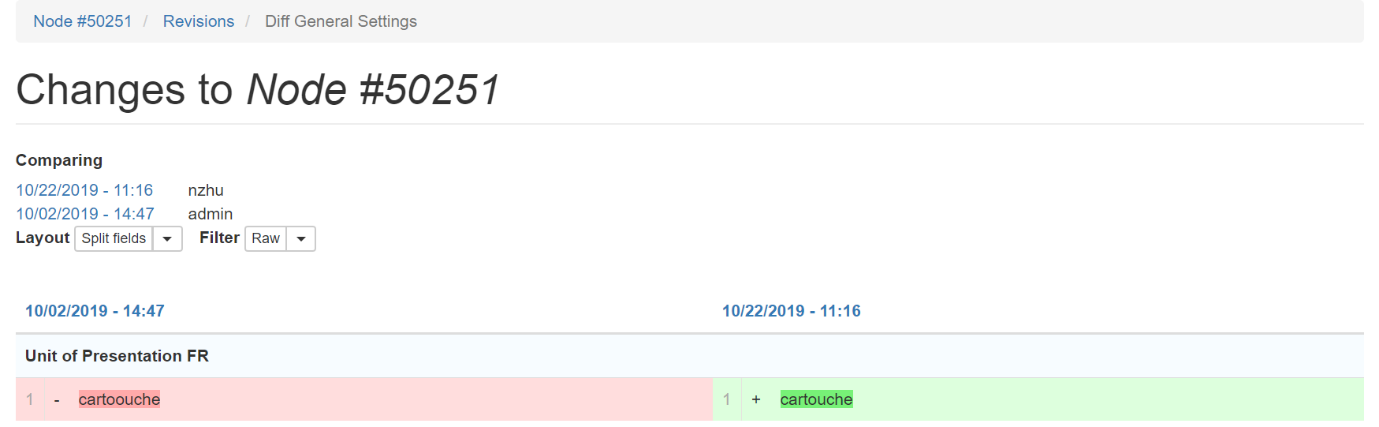
### Viewing Revisions in the Drupal tool

Different versions for a given row (or entry) can be compared when in the ‘edit mode’ above. If there have been revisions there will be a new tab labeled ‘Revisions’ as shown below.



Select the 2 versions you wish to compare (usually the 2 most recent ones) and click ‘Compare selected revisions’. Note: only Revert to previous version if you are CERTAIN it is appropriate/required.

Only the changes that have occurred between the 2 versions will be displayed. Red indicates deleted content, whereas green indicates new content.



If using the QA Tracking feature in Drupal, be sure to go back to the Edit tab and check the appropriate QA boxes (English, French) once you have verified that the revision is correct.

# NTP Strength Patterns

## Pattern 1: Presentation Strength is the clinically significant strength;

### Variation A:

The unit of presentation is bounded by the basic solid dose form (and draws its name from it). A single (1) unit of presentation is the denominator for the strength of the product, but is not stated explicitly in the strength expression (as it would be repeating the basic dose form part of the dose form concept).

**Used for:** tablets, capsules, pessaries, suppositories…

|  |  |
| --- | --- |
| **Example** | **aripiprazole 5mg oral tablet** |
| **Unit of Presentation** | The basic solid dose form | e.g., tablet |
| **Presentation strength (logical)** | Mass amount per 1 unit of presentation | 5 mg per tablet |
| **Presentation strength (usual description)** | Mass amount only; the “per” is implicit | mg |
| **Concentration strength (for information only)** | The weight of one finished dose form (including excipients) is rarely known so concentration strength is not usually available  Not deemed of any clinical significance |

### Variation B:

The unit of presentation contains the solid dose form and is therefore the “intimate container” for it. A single (1) unit of presentation is the denominator for the strength of the product, and **is** stated explicitly in the strength expression as it is not elsewhere present in the formal name.

**Used for:** sachets, ampoules or vials ***containing*** powders or granules (which may or may not undergo transformation before administration)

|  |  |
| --- | --- |
| **Example** | **cefotaxime 2 g per vial powder for solution for injection** |
| **Unit of Presentation** | The “intimate container” | e.g., vial |
| **Presentation strength (logical)** | Mass amount per 1 unit of presentation | 2 g per vial |
| **Presentation strength (usual description)** | Mass amount, with the “per” or explicit | 2 g per vial |
| **Concentration strength (for information only)** | The concentration strength is not usually available (total amount of solid in the intimate container, including excipients not known)  Not deemed of any clinical significance |

### Variation C:

The unit of presentation is a metered actuation; the volume delivery device effectively “bounds” the dose form that is presented. A single (1) unit of presentation is the denominator for the strength of the product, and **is** stated explicitly in the strength expression as it is not elsewhere present in the formal name.

**Used for:** any NTP product that is presented using a metering delivery system: pressurized inhalers, cutaneous sprays, nasal sprays etc.

|  |  |
| --- | --- |
| **Example** | **beclomethasone dipropionate 100 mcg per actuation pressurized inhalation** |
| **Unit of Presentation** | Actuation | Actuation |
| **Presentation strength (logical)** | Mass amount per 1 unit of presentation | 100 mcg per actuation |
| **Presentation strength (usual description)** | Mass amount, with the “per” or explicit | 100 mcg per actuation |
| **Concentration strength (for information only)** | The concentration of product (usually liquid) inside the metered delivery system may be known (to the regulatory agency) but is  Not deemed of any clinical significance |

Some multi-use pen products also use Pattern 1C as the pen has the equivalent of a metered dose delivery that “bounds” the presentation of the product to the patient. For these products, the addition of the container (pre-filled pen) is added to the NTP formal name.

|  |  |
| --- | --- |
| **Example** | **exenatide 5 mcg per actuation solution for injection pen** |
| **Unit of Presentation** | Actuation | Actuation |
| **Presentation strength (logical)** | Mass amount per 1 unit of presentation | 5 mcg per actuation |
| **Presentation strength (usual description)** | Mass amount, with the “per” or explicit | 5 mcg per actuation |
| **Concentration strength (for information only)** | The concentration of product (usually liquid) is often known (for exenatide, this is 250 mcg per mL) but does not have the same clinical usefulness as the amount delivered per actuation of the pen device |

## Pattern 2: Presentation Strength and Concentration Strength are both clinically useful

### Variation A:

Using the unit of presentation describes a clinically useful volume of liquid dose form; the unit of presentation is the “intimate container” for that volume; concentration strength is also known/calculable. For the presentation strength, the volume of the unit of presentation provides the strength denominator, and the unit of presentation is explicitly described at the end of the product name.

**Used for:** most small volume parenteral liquids, unit dose nebulizer solutions etc.…

|  |  |
| --- | --- |
| **Example** | **metoclopramide hydrochloride 100 mg per 20 mL solution for injection ampoule** |
| **Unit of Presentation** | The “intimate container” | e.g., ampoule |
| **Presentation strength (logical)** | Mass amount per volume contained in the unit of presentation | 100 mg per 20 mL |
| **Presentation strength (usual description)** | Mass amount per volume the “per” is explicitly stated | 100 mg per 20 mL |
| **Concentration strength** | Mass amount per unitary volume | 5 mg per 1 mL |

Some multi-use pen or cartridge products also use Pattern 2A, such as when they are labelled as such and widely known in the clinical world as the presentation strength. The calculated concentration strength may not produce nice round numbers.

|  |  |  |
| --- | --- | --- |
| **Example** | **somatropin 5 mg per 1.5 mL solution for injection cartridge** |  |
| **Unit of Presentation** | The “intimate container” | e.g., cartridge |
| **Presentation strength (logical)** | Mass amount per volume contained in the unit of presentation | 5 mg per 1.5 mL |
| **Presentation strength (usual description)** | Mass amount per volume the “per” is explicitly stated | 5 mg per 1.5 mL |
| **Concentration strength** | Mass amount per unitary volume | 3.33 mg per mL |

**Variation B:** Using the unit of presentation describes a clinically useful volume of liquid dose form; the unit of presentation is the “volume delivery device” for that volume; concentration strength is also known/calculable. For the presentation strength, the volume of the unit of presentation provides the strength denominator; no further description of the unit of presentation is provided (i.e., “spoon” or “spoonful” is not described).

**Used for:** oral liquids presented specifically for use with a medicine (tea)spoon (5 mL)

|  |  |
| --- | --- |
| **Example** | **acyclovir 200 mg per 5 mL oral suspension** |
| **Unit of Presentation** | per 5 mL | 5 mL (tea)spoon |
| **Presentation strength (logical)** | Mass amount per volume of 1 unit of presentation | 200 mg per 5 mL |
| **Presentation strength (usual description)** | Mass amount per volume the “per” is explicitly stated | 200 mg per 5 mL |
| **Concentration strength** | Mass amount per unitary volume | 4 mg per 1 mL |

## Pattern 3: Concentration Strength is the clinically significant strength

### Variation A:

The unit of presentation exists but concentration strength is the clinically significant strength; expressing unit of presentation and its size is also clinically useful and is described at the end of the name. It is particularly suitable for presentations where a variable dose quantity likely so the concentration strength is more appropriate to support safe calculation. For exceptions, see multi-use pens in Pattern 2A above.

**Used for:** bulk parenteral fluids, insulins, transdermal patches (sized UoP not needed but may be quoted in the monograph), bulk (pharmacy) vials of nebulizer solutions or parenteral injections

|  |  |
| --- | --- |
| **Example** | **insulin human 100 unit per mL solution for injection 3 mL cartridge** |
| **Unit of Presentation** | The “intimate container” | Cartridge |
| **Unit of Presentation size** |  | 3 mL |
| ***Presentation strength (logical)*** | *Mass amount contained in the unit of presentation* | *300 unit per cartridge* |
| **Presentation strength (usual description)** |  |  |
| **Concentration strength** | Mass amount per unitary volume/time | 100 unit per (1) mL |

|  |  |
| --- | --- |
| **Example** | **estradiol 0.1% transdermal gel 0.5 mg sachet** |
| **Unit of Presentation** | The “intimate container” | Sachet |
| **Unit of Presentation size** |  | 0.5 mg |
| ***Presentation strength (logical)*** | *Mass amount contained in the unit of presentation* | *0.5 mg per sachet* |
| **Presentation strength (usual description)** |  |  |
| **Concentration strength** | Mass amount per unitary volume/time | 1 mg per 1 g  *Expressed as: 0.1%* |

|  |  |
| --- | --- |
| **Example** | **mannitol 20 % solution for injection 500 mL bag** |
| **Unit of Presentation** | The “intimate container” | Bag |
| **Unit of Presentation size** |  | 500 mL |
| ***Presentation strength (logical)*** | *Mass amount contained in the unit of presentation* | *10 g per 500 mL* |
| **Presentation strength (usual description)** |  |  |
| **Concentration strength** | Mass amount per unitary volume/time | 200 mg per 1 mL  *Expressed as: 20 % w/v* |

|  |  |
| --- | --- |
| **Example** | **salbutamol (salbutamol sulfate) 5 mg per mL nebulizer solution 10 mL bottle** |
| **Unit of Presentation** | The “intimate container” | Bottle |
| **Unit of Presentation size** |  | 10 mL |
| ***Presentation strength (logical)*** | *Mass amount contained in the unit of presentation* | *50 mg per 10 mL* |
| **Presentation strength (usual description)** |  |  |
| **Concentration strength** | Mass amount per unitary volume/time | 5 mg per 1 mL |

### Variation B:

The unit of presentation exists but concentration strength is the clinically significant strength; expressing unit of presentation is not required as it is implicit from the dose form.

**Used for:** transdermal patches

|  |  |
| --- | --- |
| **Example** | **fentanyl 100 mcg per hour transdermal patch** |
| **Unit of Presentation** | The “intimate container” | Patch |
| ***Unit of Presentation size*** |  | *32 cm2* |
| ***Presentation strength (logical)*** | *Mass amount contained in the unit of presentation* | *20.4 mg per patch* |
| **Presentation strength (usual description)** |  |  |
| **Concentration strength** | Mass amount per unitary volume/time | 100 mcg per (1) hour |

### Variation C:

No unit of presentation exists, the dose form is “unbounded” (also known as “continuous”)

**Used for:** Used for: “bulk” powders and granules, semi-solids (not metered actuation), liquids not presented with a fixed volume delivery device (i.e., those expected to be measured in drops or in different volumes based on patient need; 0.5 mL, 0.8 mL, etc.)

The bottle or tube or carton that contains the unbounded dose form, even though it could be considered an “intimate container” as it is in direct contact with the dose form, it is in fact the package that the medicinal product is supplied in. The package has no relationship to the amount administered to a patient; it will contain many administrations-worth of medication. It may have no additional packaging with it, although a bottle or tube can be placed inside a carton as further packaging. Information about packaged medicinal products is not within scope of the CCDD.

|  |  |
| --- | --- |
| **Example** | **clotrimazole 1% cutaneous cream** |
| **Unit of Presentation** | Does not exist |  |
| ***Presentation strength (logical)*** |  |  |
| ***Presentation strength (usual description)*** |  |  |
| **Concentration strength** | Mass amount per unitary volume/mass | 10 mg per 1 g  *Expressed as: 1 % [w/w]* |

|  |  |
| --- | --- |
| **Example** | **hypromellose 0.5% ophthalmic drops** |
| **Unit of Presentation** | Does not exist |  |
| ***Presentation strength (logical)*** |  |  |
| ***Presentation strength (usual description)*** |  |  |
| **Concentration strength** | Mass amount per unitary volume/mass | 5 mg per 1 mL  *Expressed as: 0.5 % [w/v]* |

|  |  |
| --- | --- |
| **Example** | **digoxin 0.05 mg per 1 mL oral solution** |
| **Unit of Presentation** | Does not exist |  |
| ***Presentation strength (logical)*** |  |  |
| ***Presentation strength (usual description)*** |  |  |
| **Concentration strength** | Mass amount per unitary volume/mass | 0.05 mg per 1 mL |

## Strength Units of Measure

Unfortunately, there is currently a lack of consistency in the DPD on when to use which unit of measure to describe strength (e.g., no rule that “if a product’s strength is less than or equal to 1 mg, use microgram strengths”). This means that for any one TM, the related products may use a mixture of strength units. This was clearly evident in the combined oral contraceptives, where one product or group of products might describe the estrogen component as “ethinyl estradiol 0.035 mg” and another as “ethinyl estradiol 35 mcg”.

However, as an interchange terminology, promoting interoperability for ePrescribing, medication profiles and medication reconciliation etc., the CCDD, particularly for the NTP Formal Name, requires consistency of representation of strength within product groups for safety and usability.

The decision for the combined oral contraceptive product group was for “the CCDD NTP Formal Name representation of strength for oral contraceptives to use whole numbers of micrograms rather than the decimal representation of milligrams when appropriate”. But for other products (notably **digoxin** (see example above), **clonidine**, **dutasteride**, **nitroglycerin**, **naloxone** and **tamsulosin**) there was consistency within the product group and therefore the “CCDD will continue to use decimals of milligrams to represent the strength of these products until such time as this is changed across the healthcare culture, either by regulatory changes to the product description or by recommendation from safety bodies”.

* The pattern is therefore: if all the products in the product group (i.e., all the products associated with a particular TM) use a single strength representation (gram, milligram, or microgram) in the DPD, the NTPs should also use that strength representation.

Example: TM = “exotocillin” – all strengths in mg

|  |  |
| --- | --- |
| **Manufactured Product (in DPD)** | **NTP** |
| “EXOCIN 500 mg capsule FREDS PHARMA” | “exotocillin” 500 mg oral capsule |
| “EXOCIN 250 mg capsule FREDS PHARMA” | “exotocillin”250 mg oral capsule |
| “EXOCIN 500 mg IV FREDS PHARMA” | “exotocillin”500 mg per vial powder for solution for injection |
| “XCILLIN 250 mg Capos DONS DRUGS” | “exotocillin” 250 mg oral capsule |
| “XCILLIN 250 mg IV INJ DONS DRUGS” | “exotocillin” 250 mg per vial powder for solution for injection |
| “XCILLIN 1000 mg IV INJ DONS DRUGS” | “exotocillin” 1000 mg per vial powder for solution for injection |
| “EXOTOCILLIN 250 mg CAPS JOES GENERICS INC” | “exotocillin” 500 mg oral capsule |
| “EXOTOCILLIN 500 mg CAPS JOES GENERICS INC” | “exotocillin” 250 mg oral capsule |
| “EXOTOCILLIN 250 mg IV INJ JOES GENERICS INC” | “exotocillin” 250 mg per vial powder for solution for injection |
| “EXOTOCILLIN 500 mg IV INJ JOES GENERICS INC” | “exotocillin” 500 mg per vial powder for solution for injection |
| “EXOTOCILLIN 1000 mg IV INJ JOES GENERICS INC” | “exotocillin” 1000 mg per vial powder for solution for injection |

* And, if there is a mixture of strength representations in the DPD, if all the NTPs generate without **duplication**, this is also acceptable.

Example: TM = “exotocillin” – mixture of g and mg, but each individual strength is consistent (e.g., all 1 g strengths expressed in g, all 500 mg strengths in mg)

|  |  |
| --- | --- |
| **Manufactured Product (in DPD)** | **NTP** |
| “EXOCIN 500mg capsule FREDS PHARMA” | “exotocillin” 500 mg oral capsule |
| “EXOCIN 250mg capsule FREDS PHARMA” | “exotocillin” 250 mg oral capsule |
| “EXOCIN 500mg IV FREDS PHARMA” | “exotocillin” 500 mg per vial powder for solution for injection |
| “XCILLIN 250mg Capos DONS DRUGS” | “exotocillin” 250 mg oral capsule |
| “XCILLIN 250mg IV INJ DONS DRUGS” | “exotocillin” 250 mg per vial powder for solution for injection |
| “XCILLIN 1G IV INJ DONS DRUGS” | “exotocillin” 1 g per vial powder for solution for injection |
| “EXOTOCILLIN 250mg CAPS JOES GENERICS INC” | “exotocillin” 500 mg oral capsule |
| “EXOTOCILLIN 500mg CAPS JOES GENERICS INC” | “exotocillin” 250 mg oral capsule |
| “EXOTOCILLIN 250mg IV INJ JOES GENERICS INC” | “exotocillin” 250 mg per vial powder for solution for injection |
| ?EXOTOCILLIN 500mg IV INJ JOES GENERICS INC” | “exotocillin” 500 mg per vial powder for solution for injection |
| “EXOTOCILLIN 1 g IV INJ JOES GENERICS INC” | “exotocillin” 1 g per vial powder for solution for injection |

* **BUT**, if there is a mixture of strength representations in the DPD that creates essentially duplicate NTPs, this is not acceptable. There should be a request to the DPD to change the strength description of the outlier product(s) to match the majority; if there is no majority (as in the example below where there are just 2 products) the strength description should use what is deemed “safest” – which is usually to minimize the use of decimal places and/or the use of zeros (therefore to use “g” in this example rather than the 3 zeros needed if “mg” is used)

Example: TM = “exotocillin” – mixture of g and mg within same strength (1000 mg, 1 g)

|  |  |
| --- | --- |
| **Manufactured Product (in DPD)** | **NTP** |
| “EXOCIN 500 mg capsule FREDS PHARMA” | “exotocillin” 500 mg oral capsule |
| “EXOCIN 250 mg capsule FREDS PHARMA” | “exotocillin” 250 mg oral capsule |
| “EXOCIN 500 mg IV FREDS PHARMA” | “exotocillin” 500 mg per vial powder for solution for injection |
| “XCILLIN 250 mg Capos DONS DRUGS” | “exotocillin” 250 mg oral capsule |
| “XCILLIN 250 mg IV INJ DONS DRUGS” | “exotocillin” 250 mg per vial powder for solution for injection |
| “XCILLIN” 1G IV INJ DONS DRUGS” | “exotocillin” 1 g per vial powder for solution for injection |
| “EXOTOCILLIN 250 mg CAPS JOES GENERICS INC” | “exotocillin” 500 mg oral capsule |
| “EXOTOCILLIN 500 mg CAPS JOES GENERICS INC” | “exotocillin” 250 mg oral capsule |
| “EXOTOCILLIN 250 mg IV INJ JOES GENERICS INC” | “exotocillin” 250 mg per vial powder for solution for injection |
| “EXOTOCILLIN 500 mg IV INJ JOES GENERICS INC” | “exotocillin” 500 mg per vial powder for solution for injection |
| “EXOTOCILLIN 1000 mg IV INJ JOES GENERICS INC” | “exotocillin” 1000 mg per vial powder for solution for injection |

In this case the CCDD team should request a DPD change in the strength of “EXOTOCILLIN 1000 mg IV INJ JOES GENERICS INC” from 1000 mg to 1 g. If the DINU cannot change the strength in DPD as requested, then the override function (Combination Product table) should be used to bring consistency.

## Overage (or Shortfall) and Description of Strength

Some products, usually injectable products, are supplied with an “overage”, a surplus amount of medication to account for it being almost impossible to withdraw the total volume of liquid from a vial or ampoule, either when supplied as a liquid or after reconstitution to a liquid. When describing strength, particularly presentation strength, any overage should not be taken into account. Mostly, the DPD description of strength disregards overage, but occasionally an overage strength has been described; for example (at the time of writing) for DIN 02215187, CAVERJECT sterile powder where the strength is described as 23.2 mcg per vial, rather than as the clinically relevant strength of 20 mcg per vial, as the monograph states. In cases such as this, a request should be made to the DPD team to alter the strength to the clinically relevant strength, which is usually as stated on the monograph and relates directly to the dose quantities that are used for the medication. This will allow the NTP to be generated using the clinically relevant presentation strength, without consideration of the overage volume.

Very rarely, a product is described as having a shortfall in its volume – for example (at the time of writing) ENBREL (DIN 02274728), in both the DPD and the monograph, is stated to have a presentation strength of 50 mg per 1 mL, but the syringe is stated to contain only 0.98 mL of liquid. Dosing is based on a 50 mcg dose quantity. In this case, the stated ‘shortfall’ should be disregarded and the clinically relevant strength be used in the NTP. The DPD strength is 50 mg per 1 mL, so no change is required.

# Unit of Presentation Table (UoP Table)

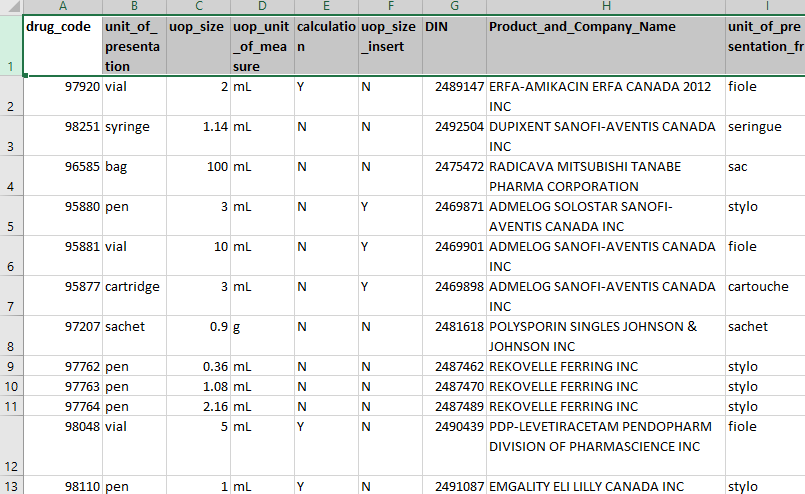
## Purpose

The UoP Table provides a data input into the CCDD generation to add information about the intimate container into the NTP formal name in cases where that does not generate automatically from the data in the DPD. It is also used to support the calculation of presentation strength when that is required and the DPD uses concentration strength.

## Unit of Presentation Table Details

The UoP Table is maintained in GitHub [<https://github.com/hres/formulary/tree/folder_reorg>] but is edited through the internal Health Canada interface tool [<https://ims8.hres.ca/ccdd/>]. It is a comma separated file (.csv) but can be opened through the GitHub tool using Excel. However, DO NOT modify the file using Excel; ALWAYS USE the HC tool (Drupal tool) as this preserves the integrity of accents in the French concepts. The UoP table does not have codes with leading zeros, so does not suffer from the Excel habit of trying to change text strings containing numbers into integers, thereby losing leading zeros

There are nine data columns, as shown below:



**drug\_code** is the DPD code for the DIN; it is the “primary key” for the product in the DPD database.

The drug code can be found by searching by DIN in the applicable DPD extract or through the Cognos analytics tool available to the CCDD Unit staff at HC.

**unit\_of\_presentation** is a text string for the unit of presentation for the product. Acceptable terms are included in a drop down list in the HC Drupal tool where CCDD source table data are entered. Possible unit of presentation concepts are:

* ampoule
* applicator
* bag
* bottle
* cartridge
* pen
* pre-filled pen
* pump
* sachet
* syringe
* tube
* unit dose vial
* vial

**uop\_size** is the value of the size of the unit of presentation; this should always be entered, even if it is not used in calculation

**uop\_unit\_of\_measure** is the unit of measure for the uop\_size expressed using a formal abbreviation; usually mL, occasionally g or mg

**calculation** is a Boolean flag (Y or N); Y indicates that the CCDD generation process should take the strength as expressed in DPD and use the uop\_size value as a multiplier for calculation of presentation strength. E.g., for a 5 mL vial of 200 mg per mL to be expressed as 1000 mg per 5 mL, set the flag to Y. If no calculation is required, i.e., in this example, if the DPD strength already appears as 1000 mg per 5 mL, the flag should be set to N.

**uop\_size\_insert** is a Boolean flag (Y or N); Y indicates that the CCDD generation process should take the uop\_size and insert this before the uop in the NTP formal name, e.g., insulin human 100 unit per mL solution for injection **10 mL** vial. If no uop\_size is needed in the formal name, the flag should be set to N.

DIN is the drug identification number of the product, as in the DPD.

**Product\_and\_Company\_Name** is the brand name and manufacturer, all uppercase, of the product as in the DPD. Descriptors are not included in the brand name. This field is populated for reference purposes but is not used in the generation process.

unit\_of\_presentation\_fr is the French description corresponding to the English unit of presentation term, and is selected from a drop-down list of French terms in the HC Drupal tool.

NOTE: many fields in this table are strings; all entries should be checked for spelling, typos and correct use of letter case.

## When to use the UoP Table

|  |  |  |
| --- | --- | --- |
| **Strength Pattern** | **UoP Table Use** | **Comment** |
| 1A | Not required | UoP not explicitly stated |
| 1B | Not required | UoP as strength denominator generates directly from DPD data |
| 1C | Not required | UoP as strength denominator generates directly from DPD data |
| 2A | Yes | See below |
| 2B | Not required | UoP not explicitly stated |
| 3A | Yes | See below |
| 3B | Not required | UoP not explicitly stated |
| 3C | Not required | UoP does not exist |

### UoP for Strength Pattern 2A

The objective is to generate the correct presentation strength and have the unit of presentation at the end of the formal name.

1. **If the DPD uses concentration strength**
   1. Fill in the UoP table for each presentation that is covered by the DIN; if several vial/ampoule/syringe presentations are included in a single DIN, this will require several rows of data. The generation process recognizes when there are multiple entries for a single drug\_code and knows that therefore it must assign an mp\_code to each, which is then associated to the single DIN
      1. Enter the drug\_code for each presentation
      2. Enter the unit of presentation for each presentation
      3. Enter the UoP size for each presentation
      4. Enter the UoP unit of measure for each presentation (this will be mL as strength pattern 2A is for liquids)
      5. Set the calculation flag to “Y” to indicate that the DPD strength must undergo a calculation to give the presentation strength
      6. Set the uop\_size\_insert to “N” to indicate that the UoP size does not need to be added to the end of the NTP formal name; the generation will add only the UoP description to the end of the NTP formal name  
         Note: if the presentation strength of the product is “per 1 mL” this pattern above needs to be used so as to get the “per 1 mL” inserted into something that in the DPD is “per mL”.
2. **If the DPD uses presentation strength**
   1. Fill in the UoP table the presentation that is covered by the DIN (there can only be one as this is presentation strength)
      1. Enter the drug\_code for the presentation
      2. Enter the unit of presentation for the presentation
      3. Enter the UoP size for the presentation
      4. Enter the UoP unit of measure for the presentation (this will be mL as strength pattern 2A is for liquids)
      5. Set the calculation flag to “N” to indicate that the DPD strength should be used without further calculation as it is the presentation strength
      6. Set the uop\_size\_insert to “N” to indicate that the UoP size does not need to be added to the end of the NTP formal name; the generation will add only the UoP description to the end of the NTP formal name

### UoP for Strength Pattern 3A

The objective is to use the concentration strength as it is the clinically significant strength but also to have the unit of presentation and its size described at the end of the NTP formal name.

1. The DPD will be using concentration strength
   1. Fill in the UoP table for each presentation that is covered by the DIN; if several vial/ampoule/syringe presentations are included in a single DIN, this will require several rows of data. The generation process recognizes when there are multiple entries for a single drug\_code and knows that therefore it must assign an mp\_code to each, which is then associated to the single DIN.
      1. Enter the drug\_code for the presentation
      2. Enter the unit of presentation for the presentation
      3. Enter the UoP size for the presentation
      4. Enter the UoP unit of measure for the presentation (this will probably be mL for liquids or g or mg for solids/semi-solids)
      5. Set the calculation flag to “N” to indicate that the DPD strength must undergo a calculation to give the presentation strength
      6. Set the uop\_size\_insert to “Y” to indicate that the UoP size does need to be added to the end of the NTP formal name; the generation will add both the UoP description and the UoP size to the end of the NTP formal name

# Dose Form Transform Table

The dose form transform table is used in the CCDD generation process to provide consistent and granular (and EDQM compatible) CCDD dose forms for NTPs from the less granular DPD dose forms and DPD route of administration information. It is also able to bring some consistency in cases where the DPD has used non-standard dose form concepts.

The generation process takes the DPD dose forms and DPD routes of administration for a product and uses the dose form transform table to find the appropriate NTP dose form for the product. This means that every combination of dose form and route of administration that is present in the DPD must be present in the dose form transform table. Occasionally new combinations of dose form and route of administration are used in the DPD; the generation process will detect this and provide a report; a new entry must then be made in the dose form transform table.

Each unique NTP dose form will have a unique identifying code assigned to it, referred to as the NTP dose form code (or NTP dosage form code, in the dose form transform table). The generation script does not use this code to produce the dose form within the NTP formal name; it is simply an identifier. However, when the generation runs, a check for a one-to-one relationship between the codes and the NTP dose forms is first performed to ensure uniqueness of codes to dose forms within the dose form transform table. If there is an error, it will stop the generation.

Note that a dose form transform rule will apply to *every product* that has the particular combination of dose form and route of administration and this limits what can be done.

#### **Example 1: Simple Mapping**

DPD dose form =SHAMPOO

NTP dose form (formal name) = shampoo

Definition: “Liquid or, occasionally, semi-solid, usually multi-dose preparation intended for application to the scalp by rubbing and subsequent washing away with water. Upon rubbing with water, shampoos usually form foam. Shampoos are solutions, suspensions or emulsions containing surface-active agents.”

Transform:

All products with DPD Dose form = SHAMPOO (code =59) transform to have the NTP dose form as “shampoo”

#### **Example 2: Simple Change**

DPD dose form = TABLET (CHEWABLE)

NTP dose form (formal name) = chewable tablet

Definition: “Solid single-dose preparation consisting of an uncoated tablet intended to be chewed before being swallowed. Chewable tablets are intended for oral administration.”  
Note: “oral” is not explicitly in the formal name dose form because chewable implies an oral site.

Transform:

All products with DPD Dose form = TABLET (CHEWABLE) (code = 151) transform to have the NTP formal name dose form as “chewable tablet”

*or*

NTP dose form (formal name) = gastro-resistant capsule

Definition: “Solid single-dose, delayed-release preparation contained in a hard or soft shell. The preparation is intended to resist the gastric fluid and to release the active substance(s) in the intestinal fluid. Hard gastro-resistant capsules are usually made by filling capsules with gastro-resistant granules or solid particles made gastro-resistant by coating or, in certain cases, by providing capsules with a gastro-resistant shell. They are intended for oral use.”

Transform:

All products with DPD Dose form = CAPSULE (ENTERIC COATED) (code =14) transform to have the NTP dose form as “gastro-resistant capsule”

#### **Example 3: Transform Using Route of Administration**

DPD dose form = CREAM

An NTP with a dose form of “cream” would not be granular enough to identify the correct set of products for prescribing.

EDQM “cream” dose forms include the intended site of use, for example:

* vaginal cream
  + Definition: “Semi-solid preparation consisting of a cream usually presented in a single-dose container provided with a suitable applicator, intended for vaginal use to obtain a local effect”
* ophthalmic cream
  + Definition: “Semi-solid sterile single-dose or multi-dose preparation consisting of a cream intended for ocular use. Eye creams may be presented in collapsible tubes fitted with a cannula and having a content of not more than 5 g of the preparation. Eye creams may also be presented in suitably designed single-dose containers. The containers or nozzles of tubes are of a shape that facilitates administration without contamination”
* cutaneous cream
  + Definition: Semi-solid single-dose or multi-dose preparation of homogeneous appearance consisting of a lipophilic phase and an aqueous phase, one of which is finely dispersed in the other. Active substance(s) are dissolved or dispersed in the basis, which may be hydrophilic or hydrophobic. Creams are intended for cutaneous use. In certain cases, transdermal delivery may be obtained

Use the route of administration information present in the DPD to transform to the more granular dose form:

Where DPD Dose form = CREAM (code =9) and DPD Route of administration = VAGINAL (code = 74) transform to have the NTP dose form (formal name) as “vaginal cream”

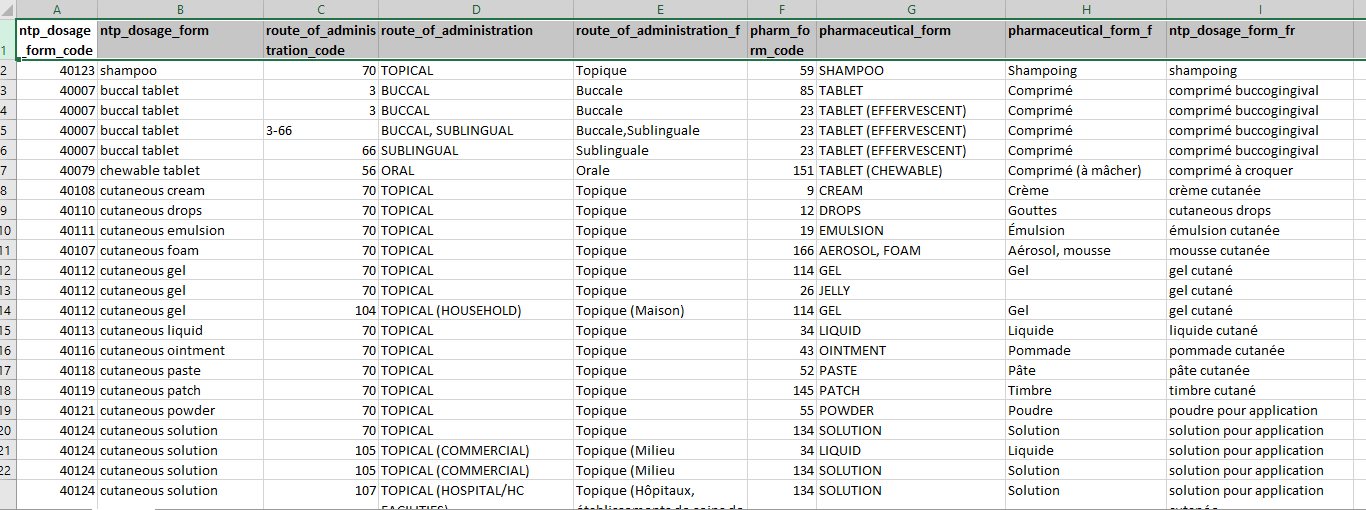
Where DPD Dose form = CREAM (code =9) and DPD Route of administration = OPHTHALMIC (code = 55) transform to have the NTP dose form (formal name) as “ophthalmic cream”

Where DPD Dose form = CREAM (code =9) and DPD Route of administration = TOPICAL (code = 70) transform to have the NTP dose form (formal name) as “cutaneous cream”

Note: "Cutaneous" (defined as "administration of a medicinal product to the skin and/or cutaneous wounds and/or nails and/or hair in order to obtain a local effect") is used in preference to "topical" in the formal description of dose forms for the NTP formal name. This is because there is no good definition of "topical" - it tends to be defined as "not systemic" and definition by exclusion is not recommended. In addition, “topical” is not an EDQM term.

### Example of Dose Form Transform Table

Sample of actual Excel table:



In the following presentation, some French columns have been omitted to provide a more easily readable sample table:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ntp\_dosage\_ form\_code** | **ntp\_dosage\_form** | **ntp\_dosage\_form-fr** | **route\_of\_administration\_code (DPD)** | **route\_of\_ administration (DPD)** | **pharm\_ form\_code** | **pharmaceutical\_form** |
| 40007 | buccal tablet | comprimé buccogingival | 3-66 | BUCCAL, SUBLINGUAL | 23 | TABLET (EFFERVESCENT) |
| 40007 | buccal tablet | comprimé buccogingival | 66 | SUBLINGUAL | 23 | TABLET (EFFERVESCENT) |
| 40079 | chewable tablet | comprimé à croquer | 56 | ORAL | 151 | TABLET (CHEWABLE) |
| 40108 | cutaneous cream | crème cutanée | 70 | TOPICAL | 9 | CREAM |
| 40121 | cutaneous powder | poudre cutanée | 70 | TOPICAL | 55 | POWDER |

## Using EDQM Dose Forms

There is, to our knowledge, no mechanism to receive update notifications from EDQM automatically, but all changes are listed on their website (see [https://standardterms.edqm.eu/#](https://standardterms.edqm.eu/)) in date order. This should be reviewed every quarter and any changes reconciled to the CCDD Dose Form list.

# Combination Products Table

**Also used as the Override Table – see below.**

The Combination Product table was originally introduced because “combination” (or multi-component) products (not to be confused with multi-ingredient products) cannot have their NTP and MP representation (auto)generated from the data present in DPD; it must be manually authored and applied *into* the CCDD generation. Individual components are joined by the word “with” in the NTP; the word “and” is used between ingredients in multi-ingredient components, whether in a single-component or multi-component (Combination) NTP (see below).

Combination products are products that contain more than one component element (in IDMP terms, more than one manufactured item); they are sometimes described as “kits”. Combination products are represented in the CCDD as MPs and NTPs, even though strictly speaking they can only be correctly represented as packaged medicinal products. Therefore, their representation cannot be generated directly from DPD information; they must be manually authored into the CCDD using the Combination Products table. For more information on Combination Products in the CCDD, including the formal name pattern to use for the authoring, see the Combination Products section in the Editorial Guidelines. See also below for details on a particular subtype of Combination Product, the dual-chamber products.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **drug\_code** | **drug\_identification\_number** | **mp\_formal\_name** | **ntp\_formal\_name** | **ntp\_type** |
| 74243 | 02257238 | LINESSA 28 (desogestrel 100 mcg and estradiol 25 mcg oral tablet with desogestrel 125 mcg and estradiol 25 mcg oral tablet with desogestrel 150 mcg and ethinyl estradiol 25 mcg oral tablet with lactose oral tablet) ASPEN PHARMA TRADING LIMITED | desogestrel 100 mcg and estradiol 25 mcg oral tablet with desogestrel 125 mcg and estradiol 25 mcg oral tablet with desogestrel 150 mcg and ethinyl estradiol 25 mcg oral tablet with lactose oral tablet | Comb |
| 75841 | 02272903 | LINESSA 21 (desogestrel 100 mcg and estradiol 25 mcg oral tablet with desogestrel 125 mcg and estradiol 25 mcg oral tablet with desogestrel 150 mcg and ethinyl estradiol 25 mcg oral tablet) ASPEN PHARMA TRADING LIMITED | desogestrel 100 mcg and estradiol 25 mcg oral tablet with desogestrel 125 mcg and estradiol 25 mcg oral tablet with desogestrel 150 mcg and ethinyl estradiol 25 mcg oral tablet | Comb |
| 92592 | 02441535 | XARELTO (rivaroxaban 15 mg oral tablet with rivaroxaban 20 mg oral tablet) BAYER INC | rivaroxaban 15 mg oral tablet with rivaroxaban 20 mg oral tablet | Comb |
| 78377 | 02298465 | RISPERDAL CONSTA (risperidone 12.5 mg per vial powder for prolonged-release suspension for injection with diluent solution) JANSSEN INC | risperidone 12.5 mg per vial powder for prolonged-release suspension for injection with diluent solution | NA |
| 49563 | 02230509 | CANESTEN COMBI-PAK CREAM 1 (clotrimazole 1 % cutaneous cream with clotrimazole 10 % vaginal cream) BAYER INC CONSUMER CARE | clotrimazole 1 % cutaneous cream with clotrimazole 10 % vaginal cream | Comb |
| 2219 | 00030600 | SOLU-CORTEF 100 MG ACT-O-VIAL (hydrocortisone (hydrocortisone sodium succinate) 100 mg powder for solution for injection with diluent solution per vial) PFIZER CANADA INC | hydrocortisone (hydrocortisone sodium succinate) 100 mg powder for solution for injection with diluent solution per vial | NA |

**drug\_code** is the DPD code for the DIN; it is the “primary key” for the product in the DPD database.

The drug code can be found by searching by DIN in the applicable DPD extract or through the Cognos analytics tool available to the CCDD Unit staff at HC.

**drug\_identification\_number** is the DIN for the product

**mp\_formal\_name** is the full string of text for the MP Formal Name that must be authored in, using the pattern as described in the Editorial Guidelines [<<Product name>> <<[NTP Name]>> << Company Name>>]

**ntp\_formal\_name** is the full string of text for the NTP Formal Name that must be authored in, using the pattern as described in the Editorial Guidelines [<<Component X NTP formal name>> **with** <<Component Y NTP formal name>>] where Component Y may not be fully specified (e.g., “diluent solution” or “lactose oral tablet”), and see below for the different semantic pattern for dual chamber products.

**ntp\_type** is either “Comb” for those products where 2 or more components contain an active ingredient substance, and “NA” for those products where one component is an inactive substance (a diluent, vehicle or “placebo”) and there is only one component containing an active ingredient.

**Further information on the ntp\_type**

The ntp\_type attribute was originally put in place to help manage the relationship between a combination product NTP (and MP) and a TM. It was originally thought that some combination products would not be associated with a TM at all (and the model did allow for that, although the relational integrity of the files as currently provided now [July 2019] does not.

All combination product NTPs (and by implication, MPs) **are** associated with a TM.   
For those combination products where one component is either a diluent or inactive substance, they are associated with the TM of the active component:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| mp\_code | mp\_formal\_name | **ntp\_code** | **ntp\_formal\_name** | tm\_code | tm\_formal\_ name |
| 02473348 | MELPHALAN FOR INJECTION (melphalan (melphalan hydrochloride) 50 mg per vial powder for solution for injection with diluent solution) MARCAN PHARMACEUTICALS INC | 9013005 | melphalan (melphalan hydrochloride) 50 mg per vial powder for solution for injection with diluent solution | 8001497 | melphalan |
| 02321157 | YAZ (drospirenone 3 mg and ethinyl estradiol 20 mcg oral tablet with lactose oral tablet) BAYER INC | 9006572 | drospirenone 3 mg and ethinyl estradiol 20 mcg oral tablet with lactose oral tablet | 8000345 | drospirenone and ethinyl estradiol |

For a combination product containing more than one active ingredient in separate components, the TM is generated as if the ingredients were in the same component and were joined by the word “and” in the NTP (i.e., as if it were a multi-ingredient product), despite being joined by the word “with” in the combination product NTP. This is not ideal but noted here for clarity.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **mp\_code** | **mp\_formal\_name** | **ntp\_code** | **ntp\_formal\_name** | **tm\_code** | **tm\_formal\_ name** |
| 02264102 | CANESTEN COMBI 1 DAY COMFORTAB + EXTERNAL CREAM (clotrimazole 1 % cutaneous cream with clotrimazole 500 mg vaginal tablet) BAYER INC | 9006481 | clotrimazole 1 % cutaneous cream with clotrimazole 500 mg vaginal tablet | 8000773 | clotrimazole |
| 02451727 | CLOTRIMAZOLE-FLUCONAZOLE COMBI-PACK (clotrimazole 1 % cutaneous cream with fluconazole 150 mg oral capsule) TARO PHARMACEUTICALS INC | 9012660 | clotrimazole 1 % cutaneous cream with fluconazole 150 mg oral capsule | 8000978 | clotrimazole and fluconazole |

NOTE: all fields in the Combination Product table are strings; all entries should be checked for spelling, typos and correct use of letter case.

## Combination Product Table being used as the Override Table

The content of the Combination Product Table is applied at the end of the CCDD generation process and therefore “overrides” the generated content for the concepts generated from the drug\_code entered. The Combination Product table and its application into the CCDD generation process offers the CCDD Team the ability to manually author NTP and MP formal names for products that are not combination products, but whose definitional data in DPD is not consistent enough to give NTPs that conform to the Editorial Guidelines, and for which the DPD is unable to change for various reasons (or cannot change within a reasonable timeline). The Combination Product Table therefore extends its scope to become a more general ‘data override’ table for NTPs and their associated MPs.

An NTP has 3 definitional attributes: the substance-strength set, the dose form and the unit of presentation. The unit of presentation is managed through the UoP table, whereas the data for the other 2 comes directly from the DPD, although it may undergo transformation through the Ingredient Stem table and the Dose Form Transform table. It is therefore change to this data that can be managed using the override.

The override is most often used when the generation/transformation process gives correct NTPs (and MPs) for the majority of products associated with a particular TM or NTP, but one or 2 products have DPD data that is different and therefore produces a separate and non-conformant NTP. Occasionally, the override is used for a single product or all the products for a particular NTP; this usually occurs when a dose form transform ‘fails’ for just one or 2 moieties but works for all others using that combination of dose form and route(s) of administration.

The following are examples of the patterns of use for the Override:

## Granularity of precise ingredient substance information

The override may be used to normalize the description of a precise ingredient substance when the DPD has different granularities of information between otherwise equivalent products:

*Example 1:*

|  |  |
| --- | --- |
| **DIN** | **Generated NTP** |
| 02242527 | dibucaine hydrochloride 0.5 % and esculin 1 % and framycetin sulfate 1 % and hydrocortisone 0.5 % rectal ointment |
| 02247322 | dibucaine hydrochloride 0.5 % and esculin 1 % and framycetin sulfate 1 % and hydrocortisone 0.5 % rectal ointment |
| 02226383 | dibucaine hydrochloride 0.5 % and esculin 1 % and framycetin sulfate 1 % and hydrocortisone **(hydrocortisone acetate)** 0.5 % rectal ointment |

Override for DIN 02226383 to manually author the NTP formal name:

|  |  |
| --- | --- |
| **DIN** | **Manually authored NTP** |
| 02226383 | dibucaine hydrochloride 0.5 % and esculin 1 % and framycetin sulfate 1 % and hydrocortisone 0.5 % rectal ointment |

*Example 2:*

|  |  |
| --- | --- |
| **DIN** | **Generated NTP** |
| 02244344 | hydrochlorothiazide 12.5 mg and telmisartan 80 mg oral tablet |
| 02330288 | hydrochlorothiazide 12.5 mg and telmisartan **(telmisartan sodium)** 80 mg oral tablet |

Override for DIN 02330288 to manually author the NTP formal name:

|  |  |
| --- | --- |
| **DIN** | **Manually authored NTP** |
| 02330288 | hydrochlorothiazide 12.5 mg and telmisartan 80 mg oral tablet |

Note: the BoSS should always be the same; only differences in granularity of expression of precise ingredient substance can use the override, and always to become less granular rather than more granular:

|  |  |
| --- | --- |
| **DIN** | **Generated NTP** |
| “aabbccdd” | “exotocillin (exotocillin hydrochloride)” 25 mg oral tablet |
| “eeffgghh” | “exotocillin (exotocillin hydrochloride)” 25 mg oral tablet |
| “jjkkllmm” | “exotocillin” 25 mg oral tablet |
| “nnppqqrr” | “exotocillin (exotocillin hydrobromide)” 25 mg oral tablet |

The override should not be used to make the “jjkkllmm” concept into “exotocillin (exotocillin hydrochloride)” 25 mg oral tablet since if that is the true situation for the product, the data in DPD should be updated. Similarly the override cannot be used to make the “nnppqqrr” concept into “exotocillin (exotocillin hydrochloride)” 25 mg oral tablet because the precise ingredient substance is different even through the BoSS is the same; these should be different NTPs.

The exception to the above is that the override has been used to manage the enalapril products, where the BoSS and the precise ingredient substance information was somewhat unusual in the DPD.

## Granularity of strength information

Strength information in an NTP must be accurate in order to allow the product to be accurately described and recognized, especially for mapping. However, tiny differences in expression of strength in the DPD that are likely below the level of pharmaceutical tolerance, but that generate separate NTPs, can be managed using the override mechanism.

*Example 1:*

|  |  |
| --- | --- |
| **DIN** | **Generated NTP** |
| 02313162 | bismuth subsalicylate 17.5 mg per mL oral suspension |
| 02468646 | bismuth subsalicylate 17.5 mg per mL oral suspension |
| 02097079 | bismuth subsalicylate 17.6 mg per mL oral suspension |
| 02242537 | bismuth subsalicylate 17.6 mg per mL oral suspension |

Override for DINs 02097079 and 02242537 to manually author the NTP formal name below; the 0.1 mg difference in strength is a 0.57% difference, which is below a 5% standard tolerance/variance for this type of product.

|  |  |
| --- | --- |
| **DIN** | **Manually authored NTP** |
| 02097079 | bismuth subsalicylate 17.5 mg per mL oral suspension |
| 02242537 | bismuth subsalicylate 17.5 mg per mL oral suspension |

*Example 2:*

|  |  |
| --- | --- |
| **DIN** | **Generated NTP** |
| 02245592 | ammonium chloride 125 mg per 5 mL and codeine phosphate 3.3 mg per 5 mL and diphenhydramine hydrochloride 12.5 mg per 5 mL syrup |
| 00690074 | ammonium chloride 125 mg per 5 mL and codeine phosphate 3.33 mg per 5 mL and diphenhydramine hydrochloride 12.5 mg per 5 mL syrup |

Override for DIN 00690074 to manually author the NTP formal name below; the 0.03 mg difference in strength is a 0.9% difference, which is below a 5% standard tolerance/variance for this type of product.

|  |  |
| --- | --- |
| **DIN** | **Manually authored NTP** |
| 00690074 | ammonium chloride 125 mg per 5 mL and codeine phosphate 3.3 mg per 5 mL and diphenhydramine hydrochloride 12.5 mg per 5 mL syrup |

Knowledge base vendors are likely to ignore these tiny differences in strength representation, therefore minimising the number of NTPs present in CCDD facilitates the mapping by reducing undesirable many-to-one mappings.

## Dose form(s)

The CCDD dose form transform process takes the DPD dose form and route(s) of administration information for a product and uses these to generate the appropriate NTP dose form for the product. The transform for each unique combination of DPD dose form and route(s) of administration must therefore be appropriate for all the products that it applies to. Unfortunately, there are a small number of combinations where it is not possible to get the transform to work for every single one of the products that have a particular combination of DPD dose form and route(s) of administration, and there is no easy alternative to request for a DPD change. In these circumstances, the override mechanism can be used to manually author the correct NTP.

*Example 1:*

|  |  |
| --- | --- |
| **DIN** | **Generated NTP** |
| 02398974 | stiripentol 250 mg per sachet oral suspension |

This comes from the transform of DPD DF = powder for suspension and DPD RoA = oral giving an NTP dose form of oral suspension, as almost all these products are antibiotic mixtures that require the administration dose form and a xx mg per 5 mL strength expression; but the stiripentol product is not, and has a per sachet expression of strength.

Override for DIN 02398974 to manually author the NTP formal name:

|  |  |
| --- | --- |
| **DIN** | **Manually authored NTP** |
| 02398974 | stiripentol 250 mg per sachet powder for oral suspension |

*Example 2:*

|  |  |
| --- | --- |
| **DIN** | **Generated NTP** |
| 02306085 | valganciclovir (valganciclovir hydrochloride) 50 mg per mL powder for oral solution |

This comes from the transform of DPD DF = powder for solution and DPD RoA = oral giving an NTP dose form of powder for oral solution, as almost all of these products are sachets of powder with a strength expression of xx mg per sachet; but the valganciclovir product is not, it is dispensed as a solution with a per mL expression of strength.

Override for DIN 02306085 to manually author the NTP formal name:

|  |  |
| --- | --- |
| **DIN** | **Manually authored NTP** |
| 02306085 | valganciclovir (valganciclovir hydrochloride) 50 mg per mL oral solution |

**General note:**

The use of the override should be limited to *one* of these issues; wherever possible it should *not* be used if there is more than one issue (e.g., a substance granularity and a dose form issue) for a single product. This is because the override is an exception and, as time goes on and data become more consistent, the override table should become redundant, and if a product has multiple issues, it becomes harder to know when each of those is fixed and the product does not need to be on the override table. Also, if a product has multiple issues, it would imply that its DPD description may need some revision.

For any concepts that produce a duplicate MP formal name and for which there is a DPD Descriptor that could be used to give unique MP names, these must be added manually when the product is in the Combination Products table. This is because the generation process that looks for duplicate MP formal names and then checks for DPD Descriptors occurs before the Combination Product/Override Table. An example of the use of DPD Descriptor is for 2 cholestyramine products:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **drug\_code** | **DIN** | **mp\_formal\_name** | **ntp\_formal\_name** | **ntp\_type** |
| 14332 | 00890960 | OLESTYR **LIGHT POWDER SUGAR FREE** (cholestyramine 4 g per sachet powder for oral suspension) PHARMASCIENCE INC | cholestyramine 4 g per sachet powder for oral suspension | NA |
| 19757 | 02210320 | OLESTYR **REGULAR POWDER** (cholestyramine 4 g per sachet powder for oral suspension) PHARMASCIENCE INC | cholestyramine 4 g per sachet powder for oral suspension | NA |

**Providing “NTP\_type” for Overrides**

\*\*This guidance may change if the generation process changes\*\*

For concepts that go into the Override Table because they need to be made to match with an existing NTP, the NTP\_type should be left blank rather than have the “NA” put in. This is because of some logic in the generation that assumes that the presence of the NA means that the NTP is different from one already in the generation with the same text. For example:

|  |  |  |  |
| --- | --- | --- | --- |
| **mp\_code** | **mp\_formal\_name** | **ntp\_code** | **ntp\_formal\_name** |
| 02440911 | HEAD & SHOULDERS NOURISHING HAIR & SCALP CARE CONDITIONER (pyrithione zinc 0.5 % shampoo) PROCTER & GAMBLE INC | 9005596 | pyrithione zinc 0.5 % shampoo |
| 02429292 | HEAD & SHOULDERS INSTANT COOLING RELIEF CONDITIONER (pyrithione zinc 0.5 % shampoo) PROCTER & GAMBLE INC | 9005596 | pyrithione zinc 0.5 % shampoo |
| 02244286 | HEAD & SHOULDERS DANDRUFF CONDITIONER (pyrithione zinc 0.5 % lotion) PROCTER & GAMBLE INC | 9004380 | pyrithione zinc 0.5 % **lotion** |

The Override table is used to “correct” the dose form for the HEAD & SHOULDERS DANDRUFF CONDITIONER product thus:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **drug\_code** | **DIN** | **mp\_formal\_name** | **ntp\_formal\_name** | **ntp\_type** |
| 68253 | 02244286 | HEAD & SHOULDERS DANDRUFF CONDITIONER (pyrithione zinc 0.5 % shampoo) PROCTER & GAMBLE INC | pyrithione zinc 0.5 % shampoo |  |

But since the NTP for pyrithione zinc 0.5 % shampoo already exists (9005596) the ntp\_type should be left blank in the Override Table; it will be carried through into the delivery from the generated NTP for the other 2 products.

# “Black List” File

### Purpose

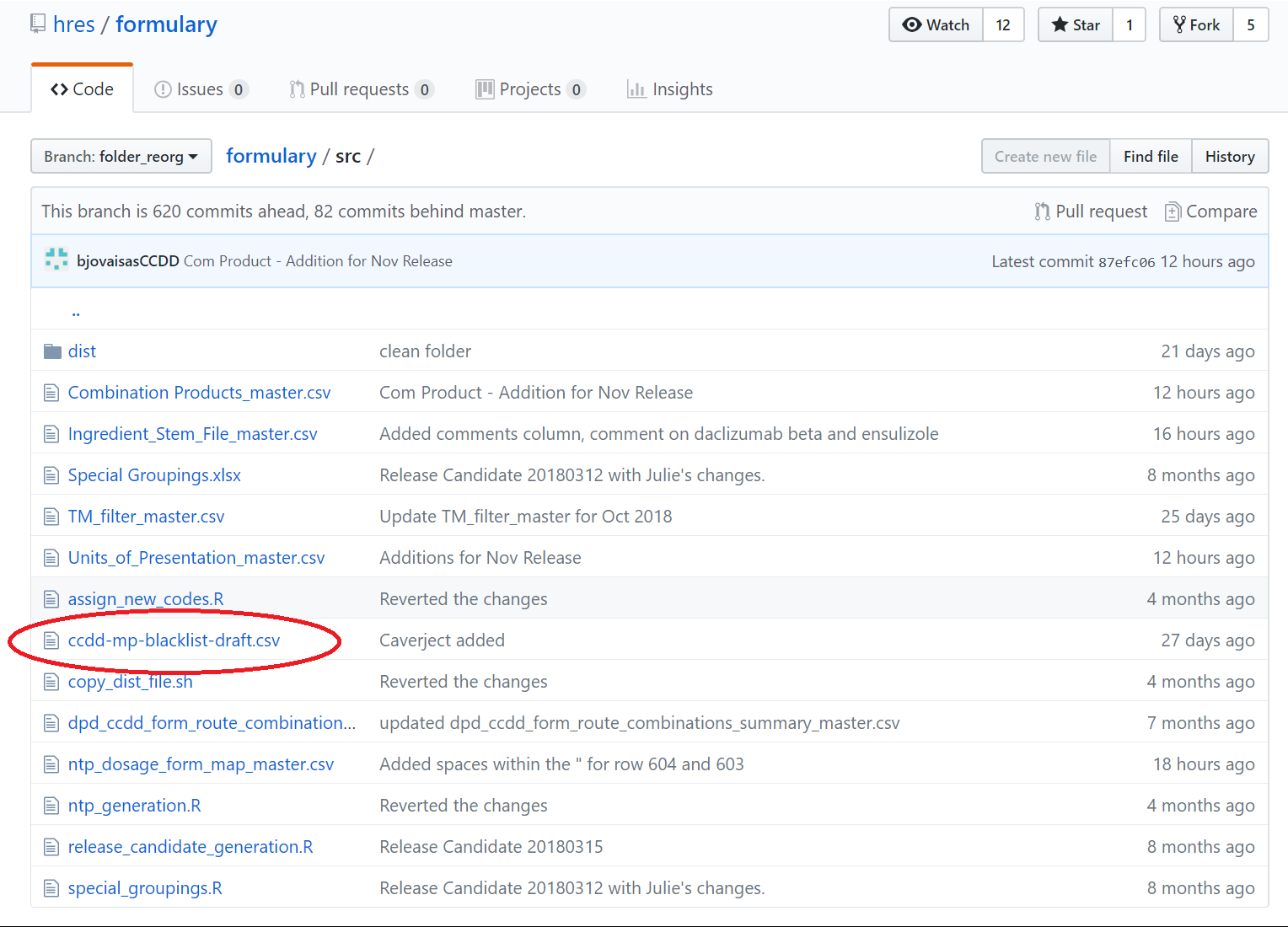
The Black List File is used to exclude a product (an MP and its associated NTP) from a publication dataset. It is used in the generation of the Release Candidate; it is not applied for the QA generation(s) so that all data can be checked, including any changed data. When a new product is added to the DPD and therefore becomes eligible for inclusion in the CCDD, the data in the DPD is not always authored so that the NTP that is generated conforms to the CCDD Editorial Guidelines. It may even be that an NTP is created that should not exist.

For TMs already released it is important not to release new related NTPs and MPs if the NTP has not generated correctly. The mechanism to do this is to exclude the “offending” MP(s) from the generation process that creates the Release Candidate, so that neither it nor the incorrect NTP that is associated with it are within the set of content for publication.

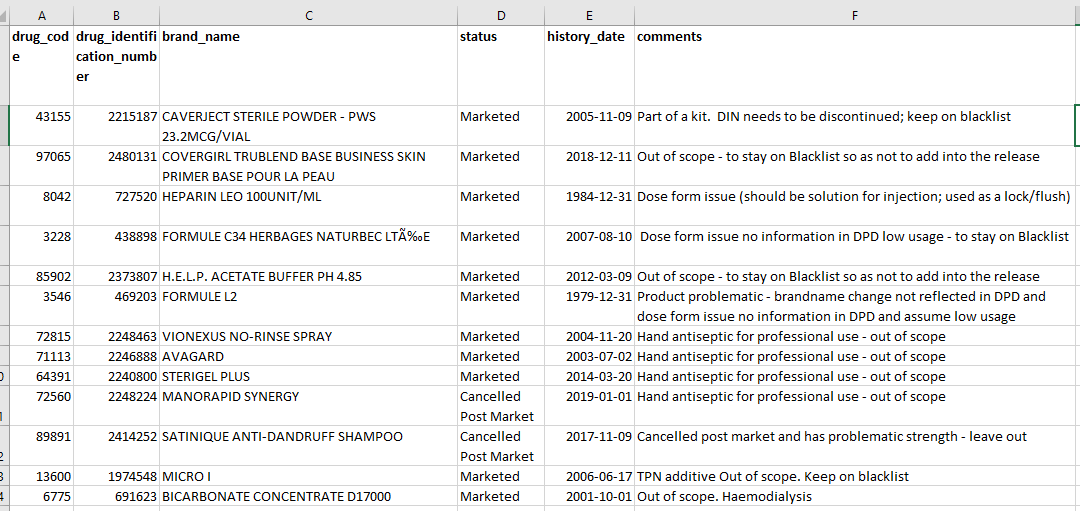
**For example:**   
MOSASPRAY (DIN 02455870) changed to a Marketed status in DPD sometime after the main set of mometasone products were released. The Editorial Guidelines pattern for description of strength for metered dose nasal sprays is “per actuation” whereas MOSASPRAY had its strength data entered as “50MCG/SPRAY”, generating an NTP of  
 mometasone furoate 50 mcg per spray nasal spray  
instead of   
 mometasone furoate 50 mcg per actuation nasal spray  
which matches with the 3 other existing MPs and the existing NTP (9006259). Therefore, the MOSASPRAY product needed to be suppressed so that neither it nor its incorrect NTP were released until the DPD data could be changed to give the correct NTP through the generation. To do this, the MOSASPRAY drug\_code was included on the Black List, using its drug\_code of 94272.

### Black List File Details

The Black List file [ccdd-mp-blacklist-draft.csv] is found in the src folder on GitHub:



The structure of the Black List is a csv file with 6 columns. The key data element for suppression of the MP/NTP from the generation is the drug code in the first column; the DIN and other information are included in each row for reference.



The drug\_code for any product to be added to the Black List can be found by searching by DIN in the relevant DPD extract, or by using the Cognos analytics tool available to the CCDD team at HC.

Note: The Black List can be used for active (Marketed) and inactive (Cancelled Post-market or Dormant) products; Cancelled or Dormant products may stay on the Black List indefinitely as it is not always possible or sensible to ask for DPD data change for a product that is no longer available for clinical use.

# Notes for Specific Product Types

## Oral Liquid Products

Oral liquid products are presented using 2 general forms:

* those where the majority of use is expected to be “per 5 mL” and are supplied with an appropriate medicine spoon (e.g., most liquid antibiotics for oral use)
* those where the majority of use is expected to be either “per 1 mL” and are supplied with an appropriate oral syringe (e.g., nystatin oral suspension) or where the majority of use is where the exact amount to administer is expected to be calculated on a per patient basis and (probably) administered using an oral syringe (e.g., digoxin oral solution)

For the first of these forms, the strength is described using presentation strength using Strength Pattern 2B (“per 5 mL”). The dose form for the NTP should be either “oral solution”, “oral suspension” or “oral emulsion” as appropriate to the product’s formulation.

For the first of these forms, the strength is described using concentration strength using Strength Pattern 3C (“per mL”) and no unit of presentation is provided. The dose form for the NTP should be “oral drops, solution”, “oral drops, suspension”, or “oral drops, emulsion”, even if not administered by means of counting drops (see EDQM dose form definition, which states that “the preparation is administered in small volumes by means of a suitable measuring device such as a dropper, pipette or oral syringe capable of accurate dosing”). However, the DPD may not be able to provide the granularity of information to support these dose form descriptions, in which case the grouping concept of “oral drops” should be used.

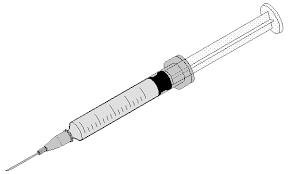
Note: it is also important to be consistent within a product group (see “[Strength Units of Measure](#_Strength_Units_of)” above).

## Pens and Syringes

As well as being presented in (standard) ampoules and vials, injectable products, especially liquid injectable (e.g., solutions for injection and suspensions for injection) may be presented in syringes and pens. Syringes and pens can therefore be units of presentation, as they are the intimate container that the medicinal product is delivered in from the manufacturer.

### Syringe as a Unit of Presentation

A **syringe** is a unit of presentation consisting of a barrel tube which contains the medication, and a plunger that is pushed to allow the contents to discharge through the end of the barrel. There is usually has a needle attached to allow direct administration (often subcutaneously). The barrel of the syringe typically has graduated marking to indicate volume (or quantity) of medication. For many products presented in a syringe unit of presentation, the entire contents of the syringe will be given in a single administration event.



A syringe unit of presentation is most likely to be single use only.

When used as a unit of presentation, the term should be “syringe”. When used as a container description, EDQM recommends the term “pre-filled syringe” to distinguish the 2 concepts.

Describing strength for products presented in a syringe

Since the entire contents of the syringe will usually be given in a single administration event, presentation strength should be used to describe the product strength. There is no requirement to provide the total volume contained, only the presentation strength.

For example:

dalteparin sodium 5000 unit per 0.2 mL solution for injection syringe

furosemide 40 mg per 4 mL solution for injection syringe

Auto-injectors

An autoinjector is a (North American) term that describes a medical device for medicine administration that is a variation of pre-filled syringe. An autoinjector device contains a pre-filled syringe and a pre-loaded spring or similar that, when activated, depresses the plunger of the syringe so that, in combination with the needle, the medication is “automatically” injected to the required depth (usually subcutaneous). This overcomes any hesitation that might be incurred by a patient or carer in administering the product through the skin’s barrier. Newer devices may use compressed gas rather than a spring.

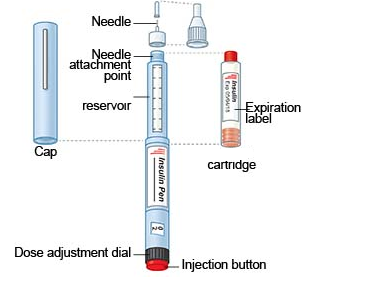
Since an autoinjector is an administration device, it is not included in an NTP formal name for CCDD concepts, although the term is likely to be present in the DPD Brand Name and therefore it will be present in the MP formal name. Products that are described as having an autoinjector should have their unit of presentation as “syringe” as this is the intimate container that presents the medication inside the autoinjector device. Prescribers that specifically wish a patient to receive an autoinjector product should prescribe by brand name.

For example:

sumatriptan (sumatriptan succinate) 6 mg per 0.5 mL solution for injection syringe

### Pen as a Unit of Presentation

A pen is a unit of presentation consisting of a barrel which houses the medication reservoir (usually a cartridge) and a cap which covers the (disposable) needle. Because most pen devices are designed specifically to support variable delivery amounts for the medication, there is usually a dose adjustment dial at the opposite end to the cap. This may be a completely variable dose adjustment, as in the insulin pens where any (reasonable) quantity of units can be selected, or there may be a small selection of dose amounts offered.



Almost all pens are re-usable, with the needles being replaced after each use although there are a small number of single-use pen products, where the entire content of the reservoir is discharged in a single administration (in these cases there is no dose adjustment dial).

Some pen devices (e.g., for insulin) are re-fillable, with the cartridges being made available separately, in which case the unit of presentation for the medicinal product is “cartridge”. Other pen devices are not refillable; once the medication in the reservoir has been used up (or has exceeded its expiry date) then the entire pen must be discarded. These products have “pen” as their unit of presentation.

When used as a unit of presentation, the term should be “pen”. When used as a container description, EDQM recommends the term “pre-filled pen” to distinguish the 2 concepts.

Describing strength for products presented in a syringe

Pens with a variable dosage

Since pens are used primarily for medications that have a variable administration dose quantity and have some sort of dosage adjustment mechanism, it is more appropriate to describe their strength as a concentration strength rather than a presentation strength, but also to give the total volume of the medication present in the pen.

For example:

insulin lispro 100 unit per mL solution for injection 3 mL pen

insulin glargine 300 unit per mL solution for injection 1.5 mL pen

Pens with a single dosage

Single use pens

For those pens that are single use, presentation strength is appropriate; for example:

adalimumab 40 mg per 0.4 mL solution for injection pen

alirocumab 150 mg per 1 mL solution for injection pen

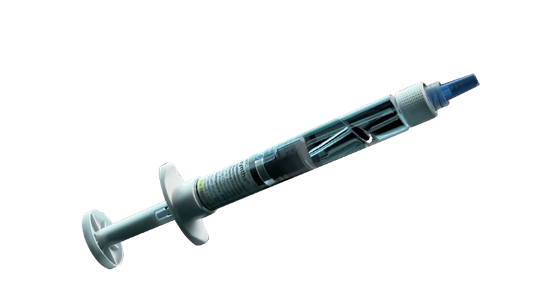
Multi-dose pens with fixed-dose per actuation   
By having a fixed dosage amount, these pens are equivalent products that have a metered dose delivery that “bounds” the presentation of the product to the patient, and as such are best described using Strength pattern 1C, with the addition of “pre-filled pen” as this is truly a description of the container added to help the user.

For example:

exenatide 5 mcg per actuation solution for injection pre-filled pen

lixisenatide 20 mcg per actuation solution for injection pre-filled pen

### Dual Chamber Products

Some products, usually powders for solution or suspension for injection, are presented in an intimate container that contains 2 chambers, usually separated by some sort of bung or plug. The bung or plug barrier is removed (usually by being mechanically pushed though) just prior to administration, dissolving the powder that was held in one chamber in the diluent in the other chamber.

In CCDD, products specifically supplied with a diluent are considered combination products and are described using the following format:

<substance> <strength per vial> <dose form) with diluent solution

Example: risperidone 25 mg per vial powder for prolonged-release suspension for injection with diluent solution

Dual chamber products are also considered combination products, but are described using the following pattern:

<substance> <strength> <dose form) with diluent solution per vial

Example: hydrocortisone (hydrocortisone sodium succinate) 1 g powder for solution for injection with diluent solution per vial

This pattern differentiates dual chamber products from combination products, and by having the “per vial” (or per syringe) at the end, it indicates that both the active ingredient substance *and* the diluent are in the intimate container together.

All combination product information is authored manually and added into the CCDD generation process, so this change in pattern order can be maintained without needing any change to the generation process.

## Lotions

“Lotion” is not an EDQM standard dose form (although there is a concept called an “eye lotion”, defined as “Liquid sterile single-dose or multi-dose preparation consisting of an aqueous solution intended for washing or bathing the eye”; here the implication of the lotion appears to be the sense of “washing” the eye, which is explicitly stated in the administration method characteristic (bathing/rinsing/washing)).

The Merriam-Webster medical dictionary defines a lotion as “*a liquid usually aqueous medicinal preparation containing one or more insoluble substances and applied externally for skin disorders*”. This definition hints at the problem; products called “lotions” must be either:

* a **cutaneous solution**, where agents have been used to make an insoluble active substance (such as a corticosteroid) “soluble” in the liquid phase; the most common agents being some of the long chain alcohols (such as propylene glycol)
* a **cutaneous suspension**, where particles of the insoluble active substance are suspended in the liquid phase often with the help of a suspending agent; [example: calamine lotion]
* a **cutaneous emulsion**, where the active substance is dissolved in a hydrophobic liquid, small droplets of which are emulsified into the hydrophilic liquid [example: benzoyl peroxide]

Because of this variation and because the use of “lotion” as a dose form has been somewhat loosely applied in the past, it is not possible to do a “dose form transform” on products that have the DPD dose form. It can be very difficult, even with full product monographs and lists of excipients, to know exactly how a particular “lotion” product is formulated, so even trying to make changes to individual products (or groups of products) is challenging.

For products already released with an NTP dose form of “lotion”, unless there is a customer query (as there has been for one or two products), this dose form will continue to be used (e.g., betamethasone (betamethasone valerate) 0.1 % lotion) until or unless a more accurate dose form can be found. For all new NTPs, if at all possible, the DPD dose form should be one of cutaneous solution/ cutaneous suspension/ cutaneous emulsion and so the NTP will have the correct dose form on generation. If this is not possible, then new NTPs may also use the dose form of “lotion”.

## Respiratory Product Patterns

### Inhalers

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pattern** | **NTP Dose form** | **NTP Expression of strength** | **Container (not in scope)** | **Example products** | **Comment** |
| Metered dose inhalers (MDI) | pressurized inhalation | per actuation  (Pattern 1C) | metered dose inhaler | Airomir, Flovent, QVAR, Sprivia, Ventolin, Zenhale | Can be a solution, emulsion or suspension that is aerosolized |
| Dry powder inhalers (DPI) | inhalation powder | per actuation  (Pattern 1C) | metered dose inhaler | Advair Diskus, Incruse Ellipta, Asmanex Twisthaler, Pulmicort Turbuhaler, Duaklir Genuair | The powder is integral to the inhaler device and cannot be separated from it, and the dosage is metered by either a value or the disk inside the inhaler |
| Powder capsule inhalers | inhalation powder capsule | per capsule (implicit) (Pattern 1A) | various (box, carton etc.) | Foradil, Ultibro Breezhaler, Serevent Diskhaler | A system that delivers “dry powder to inhale” but the powder is supplied separately from the inhalation device |
| Mist inhalers | inhalation solution; (possibly inhalation suspension if will aerosolize) | per actuation  (Pattern 1C) | metered dose inhaler | Inspiolto Respimat, Spiriva Respimat | No propellant; a tensioned spring that draws medication into a chamber, then forces it out using jets and filter to get the aerosolization |
| Nebulizer liquids | nebulizer solution;  nebulizer suspension (as appropriate) | per x mL (Pattern 2A or |  |  |  |

### Nebulizer solutions

Some medicinal products are designed to be administered using in a nebulizer: a device that aerosolizes a liquid medication into a fine mist by various mechanisms (e.g., a jet nozzle or ultrasound) and then delivers the medication to the patient in a flow of air or air with added oxygen administered through a mask or mouthpiece.

NTPs for products that are designed to be administered using in a nebulizer should have a nebulizer-specific dose form which is reflected in the NTP Formal Name. There are 2 of these dose forms:

|  |  |
| --- | --- |
| **nebulizer solution** | Liquid preparation consisting of a solution intended for inhalation use. The solution is converted into an aerosol by a continuously operating nebulizer or a metered-dose nebulizer |
| **nebulizer suspension** | Liquid preparation consisting of a suspension intended for inhalation use. The suspension is converted into an aerosol by a continuously operating nebulizer or a metered-dose nebulizer |

The DPD has not been using this dose form description, and therefore a dose form transform rule is in place to give the correct nebulizer dose form for the nebulizer products. Products with a DPD dosage form of Solution or Suspension and a route of administration of inhalation are transformed to a dose form of nebulizer solution or nebulizer suspension respectively. Products that would be incorrectly represented in CCDD due to this dose form transform rule (products that are more accurately described as inhalation solution/suspension such as the Respimat inhalers) are entered into Combination Products (override) table so that they display correctly in CCDD.

To obviate the need for the dose form transform rule, DPD will work to change relevant dose forms to nebulizer solution/suspension as and when they can.

## Naming of Insulins in CCDD

Across jurisdictions there are various terms used to refer to natural or native insulin such as soluble, regular or Toronto. In the CCDD, natural insulin is simply referred to as insulin, followed by its source (insulin human, insulin pork). When the insulin molecule or formulation has been modified in some way, the modifier will follow the term insulin (e.g., insulin isophane, insulin aspart, insulin lispro). Canadian marketed insulin isophane products may originate from human or pork and therefore the source will be specified after the modifier. As all recombinant analogues are derived from human insulin, human is implied and therefore “human” is not used in the name and the analogue name is given as insulin [analogue] (e.g., insulin lispro).

|  |
| --- |
| **Insulin Concepts in CCDD** |
| Insulin aspart  Insulin aspart and insulin aspart protamine  Insulin degludec  Insulin detemir  Insulin glargine  Insulin glulisine  Insulin human  insulin human and insulin isophane human  Insulin isophane human  Insulin isophane pork  Insulin lispro  Insulin lispro and insulin lispro protamine  Insulin pork |

# Use of brackets in TM Formal Names

## Background

TM Formal Names are primarily designed to be used for:

* Interoperability with knowledge base vendors’ high-level medication concepts
* Prescribing without specifying a product (i.e., active substance(s) + dose quantity + frequency + route of administration)
* Medication profiles

TM formal names do not need to be parsed (broken down into constituent parts in the way NTP formal names could be); they are just text names. The use of brackets does not, therefore, have to fit an absolute pattern, but should be consistent across similar concepts within the dataset (e.g., whether source species are in brackets or not).

## Suggested patterns for use of brackets in TMs:

1. Brackets will be used in TM Formal Names to distinguish between sibling concepts that are either
   1. Salt and base of the same moiety
   2. Liposomal or conventional presentations of the same moiety

In these situations, to not have an entry in brackets would mean that the TM without brackets could be mistaken for a “parent” TM (which CCDD does not have).

For example:

|  |  |  |  |
| --- | --- | --- | --- |
| **TM with brackets in formal name** | | **Differentiating TMs** | |
| **tm\_code** | **tm\_formal\_name** | **tm\_code** | **tm\_formal\_name** |
| 8000028 | dexamethasone (base) | 8000114 | dexamethasone phosphate |
| 8001470 | fluorometholone (base) | 8001471 | fluorometholone acetate |
| 8000204 | lithium (ion) | 8000041 | lithium carbonate |
| 8002198 | irinotecan (conventional) | 8002199 | irinotecan (liposomal) |
| TBD | doxorubicin (conventional) | TBD | doxorubicin (pegylated liposomal) |
| TBD | amphotericin B (conventional) | TBD  TBD | amphotericin B (lipid complex)  amphotericin B (liposomal) |

1. Brackets will not be used in TM Formal Names when the difference between sibling TM concepts is about the source species for the active ingredient substance(s); the source species will follow in text without brackets:

|  |  |
| --- | --- |
| **tm\_code** | **tm\_formal\_name** |
| 8000168 | insulin isophane human |
| 8001391 | insulin isophane pork |
| 8001393 | insulin human |
| 8001281 | insulin pork |
| 8001605 | calcitonin salmon |
| 8002009 | antithymocyte globulin equine |
| 8002030 | antithymocyte globulin rabbit |

## Current Use of Brackets in TMs

As of the February 2020 release, the following TMs have brackets in the formal name:

|  |  |  |  |
| --- | --- | --- | --- |
| **TM with brackets in formal name** | | **Associated TMs without brackets** | |
| **tm\_code** | **tm\_formal\_name** | **tm\_code** | **tm\_formal\_name** |
| 8000053  8000794 | **betamethasone (base)**  betamethasone acetate and betamethasone (base) | 8000792  8000791 | betamethasone valerate  betamethasone dipropionate |
| 8000028  8000338  8000932  8002240  8000848 | **dexamethasone (base)**  ciprofloxacin and dexamethasone (base)  dexamethasone (base) and framycetin and gramicidin  dexamethasone (base) and neomycin and polymyxin B  dexamethasone (base) and tobramycin | 8000114  8000137 | dexamethasone phosphate  dexamethasone sodium phosphate |
| 8002119 | **eptacog alfa (activated)** | NA | NA |
| 8001774 | **filgrastim (conventional)** | NA | NA |
| 8002057 | **filgrastim (pegfilgrastim)** | NA | NA |
| 8001470 | **fluorometholone (base)** | 8001471 | fluorometholone acetate |
| 8000848 | **interferon alfa-2a (peginterferon alfa-2a)** | 8001812 |  |
| 8001814 | **interferon beta-1a (conventional)** | NA |  |
| 8002296 | **interferon beta-1a (peginterferon beta-1a)** | NA |  |
| 8002198 | **irinotecan (conventional)** | NA |  |
| 8002190 | **irinotecan (liposomal)** | NA |  |
| 8000204 | **lithium (ion)** | 8000041 | lithium carbonate |
| 8001667 | **methylprednisolone (base)** | 8001291 | methylprednisolone acetate |
| 8002298 | **patisiran (lipid complex)** |  |  |
| 8000005 | **phenytoin (base)** | 8000004 | phenytoin sodium |
| 8000221  8000108  8000072 | **valproic acid (base)**  **valproic acid (divalproex)**  **valproic acid (valproate)** | NA | NA |

Anticipated additions to the list of TMs with brackets (not including new combinations with existing TMs):

|  |  |
| --- | --- |
| **tm\_code** | **tm\_formal\_name** |
| TBD | amphotericin B (conventional) |
| TBD | amphotericin B (lipid complex) |
| TBD | amphotericin B (liposomal) |
| TBD | doxorubicin (conventional) |
| TBD | doxorubicin (pegylated liposomal) |
| TBD | paclitaxel (conventional) |
| TBD | paclitaxel (albumin) |

# Use of brackets in NTP Formal Names

## Background

NTP Formal Names are primarily designed to be used for:

* Interoperability with knowledge base vendors’ product level medication concepts
* Prescribing without specifying a manufactured product (i.e., active substance(s) + strength + dose form + unit of presentation)
* Medication profiles

The CCDD does not distribute the definitional attributes used to construct NTPs as separate data elements; if users (e.g., formularies) wish to have those definitional attributes for NTPs, one likely action would be to parse NTP formal names and construct the definitional attributes themselves. The NTP formal name pattern, and with it the use of brackets, must therefore be more consistent across the entire data set, if at all possible.

## NTP Formal Names pattern:

For single ingredient products:

<<BoSS>> <<(precise ingredient substance)>> <<strength>> <<dose form>>  <<unit of presentation>>

For multiple ingredient products:

<<BoSS A>> <<(precise ingredient substance A)>> <<strength A>> <<and>> <<BoSS B>> <<(precise ingredient substance B)>> <<strength B>> <<dose form>>  <<unit of presentation>>

For all products, precise ingredient substance and unit of presentation are present only when required, as stated in the Editorial Guidelines. If present, the precise ingredient substance will be stated within brackets.

For a small number of NTPs, there is more than one precise ingredient substance within a set of brackets; this occurs where products have a mixed set of precise ingredient substances – usually salt(s) and base – for a single moiety and therefore a single BoSS. In these cases, multiple forms of the precise ingredient will be separated by a comma within a single set of brackets.

Example:

|  |  |
| --- | --- |
| **ntp\_code** | **ntp\_formal\_name** |
| 9012792 | diphenhydramine hydrochloride 25 mg and ibuprofen (ibuprofen, ibuprofen potassium) 200 mg oral capsule |
| 9006495 | naproxen (naproxen sodium, naproxen) 200 mg oral capsule |

**NTPs for “conventional” and “liposomal” forms of ingredients:**

These will use the standard NTP pattern with the BoSS outside the bracket and the PAI inside; the liposomal PAI will therefore be inside the bracket:

|  |  |
| --- | --- |
| **ntp\_code** | **ntp\_formal\_name** |
| TBD | amphotericin B (**amphotericin lipid complex**) 100 mg per 20 mL suspension for injection vial |
| TBD | amphotericin B (**amphotericin liposomal**) 50 mg per vial powder for solution for injection |
| TBD | amphotericin B **(conventional) 50** mg per vial powder for solution for injection |
| TBD | irinotecan (**irinotecan sucrose octasulfate liposomal**) 43 mg per 10 mL suspension for injection vial |
| TBD | irinotecan hydrochloride 40 mg per 2 mL solution for injection vial |
| TDB | irinotecan hydrochloride 100 mg per 5 mL solution for injection vial |
| TBD | irinotecan hydrochloride 300 mg per 15 mL solution for injection vial |
| TBD | irinotecan hydrochloride 500 mg per 25 mL solution for injection vial |
| TBD | doxorubicin hydrochloride (**doxorubicin hydrochloride pegylated liposomal**) 20 mg per 10 mL suspension for injection vial |
| TBD | doxorubicin hydrochloride 10 mg per 5 mL solution for injection vial |
| TBD | doxorubicin hydrochloride 20 mg per 10 mL solution for injection vial |
| TBD | doxorubicin hydrochloride 50 mg per 25 mL solution for injection vial |
| TBD | doxorubicin hydrochloride 2 mg per mL solution for injection 100 mL vial |
| TBD | doxorubicin hydrochloride 10 mg per vial powder for solution for injection |
| TBD | doxorubicin hydrochloride 50 mg per vial powder for solution for injection |
| TBD | doxorubicin hydrochloride 150 mg per vial powder for solution for injection |