

# How to read the NordDRG definition tables

The NordDRG definition tables control most of the grouping process. Through these tables, one can study the grouping logic in detail. The definition tables for each version of NordDRG are in different formats, currently Excel, CSV and JSON. The CSV and JSON files are used in the computer-based groupers on the market, while the Excel format is intended for information. In Excel, all tables are in the same file with the various tables in the different tabs. These tables are easy to read because extra data, not needed for the grouping, is included, e.g. texts of the DRG, diagnosis and procedure codes.

*This document describes the basics of how to read the definition tables in Excel format. The description is concentrated on the tables that are important for the grouping.*

*It is recommended that the document is printed on paper so that you can read it while you have the Excel file open on your computer screen and are able to jump between the different tabs.*

The most common reason for studying the definition tables is to see which diagnoses or procedures that are included in a certain DRG or to see what DRGs a certain diagnosis or procedure can be grouped into. These steps are described in the end of the document, but in order to be able to perform those steps, a basic knowledge of the contents of the tables is necessary.

## 1. Table ‘drg\_logic’

The table has 2700 to more than 4000 rows depending on national version. Each row refers to a grouping rule. Therefore, there are significantly more rows than the number of DRGs and it depends on that various rules can lead to the one and same DRG. During the grouping process, the health care contact's data are compared with those in the grouping rules, line by line, starting from the top of the table, until the data is consistent. Then the process stops and the grouper delivers the DRG code and the rtc code (see more about rtc code below) that are on the current row.

The grouping rules contain no diagnosis or procedure codes. The rules are instead based on the diagnosis and procedure code's different grouping properties retrieved from the definition tables ‘dg\_feat’ and ‘proc\_feat’, which are described more below. Since many diagnosis or procedure codes have the same grouping properties, a single grouping rule can handle a larger amount of diagnoses and procedures.

The table ‘drg\_logic’ has a number of columns with different functions for the grouping process. The columns are described below in the sequence that they are arranged in the table.

- **Column ‘ord’**  
The title stands for "order" and the values in this column indicate the relative order of the grouping rules. The main principle is that the rules for DRGs with higher weight shall stand before the rules for DRGs with less weight, at least within each MDC (see more about the MDC below). This hierarchical order shall, among other things, prevent that addition of a further procedure code results in a DRG with lower weight.
- **Column ‘id’**  
The title stands for “identifier” and there is a unique value for each rule.
- **Column ‘drg\_nat’**  
This is the grouping result, i.e. the DRG code that the grouping rule leads to.
- **Column ‘drg\_text\_nat’**  
The national text to the DRG code that the grouping rule leads to.
- **Column ‘drg\_comb’**  
This is the DRG code in the combined version of NordDRG that the grouping rule leads to.

- **Column 'rtc'**

The title stands for "return code" and the value is part of the grouping result (along with the DRG code). The number 0 or the letter A means that the input data (diagnosis codes, etc.) are correct while other values indicate various kinds of problems. All return codes are specified in the table 'rtc' (see separate tab).

The columns from 'icd' to 'disch' specify the requirements that must be met for each grouping rule. The relationship between the columns is "and" (not "or"), which means that all the specified requirements on the row must be met.

- **Column 'icd'**

The value + (plus) means that there must be a principal diagnosis (= first diagnosis of patient data) with a diagnosis code according to the table 'dg' (see separate tab). If the field is blank, however, no diagnosis code is needed. By the value – (minus), no diagnosis code is allowed. The latter applies to rules for validation of the patient data, and they lead to a DRG where the code starts with the letter Z in Swedish version and DRG 470 (or its sub-groups in other countries' versions of NordDRG).

- **Column 'mdc'**

MDC stands for Major Diagnostic Category, which is a very rough classification of all existing diagnoses in only 27-29 groups (including MDC 98 and 99) depending on national version. In the column 'mdc' it is stated what MDC the principal diagnosis must belong to. Note that this is not always the same as the MDC for the actual DRG. If the field is empty, a diagnosis code from any MDC is accepted. The MDCs for all the diagnosis codes are listed in the table 'dg\_feat', which is described more below. All existing MDCs and their texts are available in the table 'mdc' (see separate tab).

- **Column 'dgcatt'**

The title stands for "diagnosis category". If a value is specified, the diagnosis code for the principal diagnosis must have the same value. A diagnosis code in position as secondary diagnosis can never generate any dgcatt value. A diagnosis code can only belong to one single diagnosis category in the national NordDRG versions. A common characteristic for dgcatt values is that they contain the letter M and the numbers before the letter M is the same as the MDC for the diagnosis code.

A list of all diagnosis categories (and with explanatory text) is in the table 'dgcatt\_name' (see separate tab). Diagnosis category values for the diagnosis codes can be seen in the table 'dg\_feat' that is described more below.

- **Column 'pdgprop'**

The title stands for "principal diagnosis property". If a value is specified, the diagnosis code for the principal diagnosis must have the same value. A diagnosis code in position as secondary diagnosis can never generate any pdgprop value. Principal diagnosis property is used in a similar way as the diagnosis category described above, but there is a significant difference. A diagnosis code can only belong to one single diagnosis category (dgcatt) but it can have multiple principal diagnosis properties (pdgprop). Thus, the principal diagnosis properties can be used to construct grouping rules for only some of the diagnosis codes that belong to a specific diagnostic category. A common characteristic for the pdgprop values is that they contain the letter P. A list of all pdgprop values (and with explanatory texts) is in the table 'pdgprop\_name' (see separate tab). Many diagnosis codes have no pdgprop value, while others can have several pdgprop values. The pdgprop value(s) for the diagnosis codes, if any, are listed in the table 'dg\_feat', which is described more below.

- **Column 'compl'**

The title stands for "complication and/or co-morbidity", which usually is abbreviated as "CC". In the rules leading to DRGs of the type "with MCC" (= Major CC) the value in this column is 2 (exists

often in the Swedish version but is rare in other versions) and in the rules leading to DRGs of the type “with CC” the value in this column is 1. Otherwise the column is empty.

Not all DRGs are divided into the subgroups “with MCC” and “with CC” but if so, the MCC rule is always located above the corresponding CC rule, which in turn always is located above the corresponding rule for the DRG without CC.

For allocation to a MCC subgroup, the patient data must have a diagnosis code with CC property = 2 and for allocation to a CC subgroup, the patient data must have diagnosis code with CC property = 1, but if there is no previous MCC rule, also the patient data with diagnosis code with CC property = 2 will be grouped according the CC rule. Thus, the value 1 in the column “compl” can be read as 1 or 2.

The CC properties 1 and 2 can be generated by some of the diagnosis and procedure codes in somewhat different ways:

- A relatively small number of procedure codes have CC property = 1 but so far no procedure codes have CC property = 2. The procedure codes that have CC property can be seen in the table ‘proc\_feat’ that is described more below.
- A larger number of diagnosis codes have the possibility to generate CC property but only in the position as a secondary diagnosis. Thus, the principal diagnosis can never generate CC property. The possibly complicating diagnoses do not have a direct CC property like the procedure codes. They are instead arranged in complication categories. Which complication category a diagnosis code belongs to, can be seen in the table ‘dg\_feat’ at the variable type (vartype) COMPL. The codes for the complication categories have the letter G, C or I in the middle. A complication category with letter G can generate CC property = 2 and a complication category with the letter C can generate CC property = 1 but there are exceptions to this rule. For each complication category there is a list of principal diagnoses that are excluded from being complicated by a secondary diagnosis with that complication category. These lists of exclusions are in the table ‘compl\_excl’ that is described more below.

A complication category with the letter I is inactive. It is then required an additional diagnosis code to activate it to a complication category with the letter C. A list of all the complication categories is in the table ‘compl\_name’ (see separate tab). In that table, in the column ‘inclprop’, one can also see the grouping properties that are needed to activate an inactive complication category.

- **Column ‘or\_proc’**

The title stands for "operation room procedure property". Many procedure codes have this grouping property. Codes for major interventions that mostly are performed in the operating room have or value 1. Codes for major interventions that typically can be performed in outpatient care have instead or value 2. Other procedure codes have no or property, i.e. 0 (zero)

The or values, if any, for all procedure codes are listed in the table ‘proc\_feat’, which is described more below.

The requirement of or property in the current grouping rule is specified in column ‘or\_proc’ but not with the numbers 1 or 2, but instead by the letters S, P, N or Z and they have the following meaning: S = or property with the value 1 must be present.

P = or-property with value 1 or 2 must be present.

N = or-property with value 1 must not occur but or property with value 2 is allowed.

Z = or property must not occur, neither with the value 1, nor 2.

- **Column ‘procpro’**

The title stands for “procedure property”. If a value is specified, any of the procedure codes in the patient data must have the same value.

A common characteristic for the procpro values is that they contain the letters D, E, O, S, T or V.

- D stands for diagnostic procedures (mostly used in the Finnish version)
- E stands for endoscopic procedures
- O stands for a variety of outpatient procedures (mostly used in the Norwegian version)
- S stands for surgical procedures
- V stands for a variety of outpatient procedures (mostly used in the Swedish version).

A list of all procedure properties (and with explanatory text) is in the table 'procprop\_name' (see separate tab).

Procpro values for the procedure codes can be seen in the table 'proc\_feat', which is described more below.

- **Column 'secpro'**

The title stands for "secondary procedure property". If there is a value in this column, there must be an additional procedure, a secondary procedure, with this property in the patient's data. If there is a minus sign in front of the property it means that the procedure property is not allowed. An isolated negative sign means that there must be no secondary procedure with or property = 1.

- **Columns 'dgprop1', 'dgprop2', 'dgprop3' & 'dgprop4'**

The titles of these four columns stand for "diagnosis property". If there is a value, any of the patient's procedure or diagnosis codes must have the same dgprop value. Note that not only diagnosis codes but also procedure codes can have diagnosis properties and the same code can have several different diagnosis properties. Note also that the diagnosis property can be generated by diagnosis codes irrespective of the position as principal or secondary diagnosis. With all these options and with the possibility to combine several requirements in these four columns, it is possible to construct grouping rules that are quite complex.

These columns are also used for the variable type (vartype) SDGPRO (second diagnosis property). A common characteristic for DGPROP values is that they contain the letter X and SDGPRO values contain the letter K. A list of all DGPROP and SDGPRO values is in the table 'dgprop\_name' (see separate tab). The procedure and diagnosis codes with diagnosis property are listed in the tables 'proc\_feat' and 'dg\_feat', respectively, at the variable type (vartype) DGPROP.

Diagnosis codes with second diagnosis property are listed in the table 'dg\_feat' at the variable type (vartype) SDGPRO.

- **Column 'agemin'**

The title stands for "age limit". Note that the age is expressed in number of days, and for inpatients it refers to the patient's age at the hospital admission. This is particularly important for the grouping of neonatal patients. Also note that the age limits are not specified in all the rules for DRGs with age division. This is for practical reasons. If a previous rule handles all cases of one age category, then of course, no age limit is needed in the following rule for the other age category.

- **Column 'sex'**

The validation rules leading to DRG with the text saying that the diagnosis or procedure and the gender of the patient do not match have been deleted from NordDRG 2016 and onwards and there are no grouping rules that only apply to only one of the sexes. Thus, this column is empty but it has still a function. It is hard-coded in the groupers that grouping properties beginning with 98 are converted to the corresponding property beginning with 12 if the patient is male and to the corresponding property beginning with 13 if the patient is female. Therefore there are validation rules leading to DRG 470G (Z73 in the Swedish version) with the text "Information about gender is missing" if the principal diagnosis belongs to MDC 98 and the field 'sex' is empty. For more information, see the chapter "MDC 98" later in this document.

- **Column 'dur'**

The title stands for "duration", i.e. the number days for the hospital stay. Note that the number of hospital days is calculated as the discharge date minus the admission date plus one day. Thus, a patient who is admitted and discharged during the same date has one hospital day. Outpatients are never admitted, that is why they always have zero hospital days. A basic DRG principle is that the length of stay should not affect the grouping so the duration is used almost only to distinguish between inpatients ('dur' is then  $> 0$ ) and outpatients ('dur' is then  $< 1$ ). Some national NordDRG versions have DRGs for short inpatient care; 'dur' is the  $< 2$ .

Note, however, that the duration is not specified in most of the rules for inpatients. This is for practical reasons. If the corresponding contacts in outpatient care already have been grouped to an outpatient DRG via rules higher up in the drglogic table, it is unnecessary to print  $> 0$  in the inpatient rules.

- **Column 'disch'**

The title stands for "discharge". If the grouping rule demands a specific way of discharge it is given with a letter as follows:

E = discharged deceased

N = discharged alive

R = transferred to another hospital

- **Column 'nat\_ver'**

This column has no meaning for the grouping. It only shows which national version of NordDRG it is about. In the Swedish version of definition tables, the column sometimes is removed.

## 2. Table 'dg\_feat'

In older Excel versions, the table is divided into "dg1" and "dg2" because of its size. The table contains all diagnosis codes with grouping properties. The table columns are:

- **code\_nat**

In this column are the national diagnosis codes. If there are asterisk-dagger combinations, the asterisk code is in this column.

- **d\_code\_nat**

If there are national asterisk-dagger combinations, the dagger code is in this column.

- **text\_nat**

Here are the national texts to the codes in the column 'code\_nat'. The texts are retrieved from the table 'dg'.

- **d\_text\_nat**

Here are the national texts to the codes in the column 'd\_code\_nat'. The texts are retrieved from the table 'dg'.

- **code\_plus**

Here are ICD+ codes that corresponds to the national codes in the column 'code\_nat'. ICD+ is a diagnosis classification that is common for all nations in the NordDRG system, which makes it possible to compare the grouping logic in the different national versions of NordDRG.

- **d\_code\_plus**

Here are ICD+ codes that corresponds to the national codes in the column 'd\_code\_nat'.

- **text\_plus**

Here are the texts to the codes in the column 'code\_plus'.

- **d\_text\_plus**

Here are the texts to the codes in the column 'd\_code\_plus'.

- **vartype**

The title stands for "variable type". The different variable types have already been mentioned above in the description of the table "drglogic" but here is a summary: *(The abbreviations of the variable types in the dg\_feat table can differ slightly from those in the column headings in the table 'drg\_logic' but they mean the same thing.)*

- MDC = major diagnostic category
  - DGCAT = diagnosis category
  - PDGPRO = principal diagnosis property
  - COMPL = complication category
  - DGPROP = diagnosis property
  - SDGPRO = second diagnosis property
- **varval**  
The title stands for "variable value". Common characteristics for variable values have already been mentioned above in the description of the table 'drg\_logic' but here is a summary:
  - MDC            just numbers, two digits.
  - DGCAT        contains the letter M. Numbers before M = MDC.
  - PDGPRO       contains the letter P.
  - COMPL        contains the letter G, C or I
  - DGPROP       contains the letter X.
  - SDGPRO       contains the letter K.
- **prop\_0**  
"True" means that the code has no other properties than the one that is stated on the row.  
"False" means that the code has several properties.
- **varval\_text\_nat**  
Here can be a very short description text to the variable value in the national language. The texts are from the tables 'mdc\_name', 'dgcate\_name', 'pdgprop\_name', 'compl\_name' and 'dgprop\_name'. Note that the national texts of variable values are neither maintained in NDMS, nor delivered by NCC. If wanted, they can be added by the national organizations.
- **varval\_text\_comb**  
A very short description text to the variable value in English. Delivered by NCC.
- **nat\_ver**  
Shows which national version of NordDRG it is about. In the Swedish version of definition tables, the column sometimes is removed.

### 3. Table 'proc\_feat'

The table contains all the procedure codes with grouping properties. The columns are:

- **code\_nat**  
Here are the procedure codes according to the national classification, which in Sweden is KVÅ.
- **text\_nat**  
The national code texts, retrieved from the table 'proc'.
- **code\_plus**  
Here are NCSP+ codes that corresponds to the national codes in the column 'code\_nat'. NCSP+ is a procedure classification that is common for all nations in the NordDRG system, which (like ICD+) makes it possible to compare the grouping logic in the different national versions of NordDRG.
- **text\_plus**  
Here are the texts to the codes in the column 'code\_plus'.
- **vartype**



The title stands for "variable type. The different variable types have already been mentioned above in the description of the table 'drg\_logic' but here is a summary: *(The abbreviations of the variable types in the proc\_feat table can differ slightly from those in the column headings in the table 'drg\_logic' but they mean the same thing.)*

- CC = CC property
- DGPROP = diagnosis property
- OR = OR property
- PROCPR = procedure property

- **varval**

The title stands for "variable value". Common characteristics for variable values have already been mentioned above in the description of the table 'drg\_logic' but here is a summary:

- CC digit 1 if the code has CC property.
- DGPROP contains the letter X.
- OR digit 1 or 2 if the code has OR property. Otherwise 0 (zero).
- PROCPR contains the letter D, E, O, S, T or V as described above.

- **or\_val**

A separate column for the 'or' value. This makes it possible to filter out all procedure codes with a certain procedure property in the column 'varval' and at the same time see their 'or' value.

- **prop\_0**

"True" means that the code has no other properties than the one that is stated on the row.

"False" means that the code has several properties.

- **varval\_text\_nat**

Here can be a very short description text to the variable value in the national language. The texts are from the tables 'dgprop\_name' and 'procprop\_name'. The variable values for CC and OR have no texts. Note that the national texts of variable values are neither maintained in NDMS, nor delivered by NCC. If wanted, they can be added by the national organizations.

- **varval\_text\_comb**

A very short description text to the variable value in English. Delivered by NCC.

- **nat\_ver**

Shows which national version of NordDRG it is about. In the Swedish version of definition tables, the column sometimes is removed.

## 4. Table 'compl\_excl'

The table shows the principal diagnoses that cannot be "complicated" by secondary diagnoses with certain COMPL values. The table is read as follows:

- In the column '**varval**', filter out the COMPL value of the secondary diagnosis (which is obtained from the table 'dg\_feat').
- In the column '**code\_nat**' (and 'd\_code\_nat' for asterisk-dagger codes), search for the code(s) for the principal diagnosis. If the current principal diagnosis is there, it is excluded from being "complicated" by the current secondary diagnosis and no CC property is generated, which means that you do not get any complication DRG. The process must be repeated for each secondary diagnosis with COMPL that occur in the patient data.

## 5. Requirements to get a DRG of the type CC or MCC

*This is a summary of what is already mentioned in the table descriptions above.*

1. A basic requirement is that the patient data leads to a DRG that actually is divided in CC levels. About half of the "base" DRGs have no such division. The DRG texts show if there are divisions in

CC levels but in the Swedish version it is also obvious from the DRG code. DRGs where the code ends with the letter N (for inpatient DRGs), O (for outpatient DRGs in specialized care) and R (for primary care DRGs) are not divided in CC levels.

2. The patient data must contain a procedure code with CC = 1 according to the table 'proc\_feat' or a secondary diagnosis with COMPL according to the table 'dg\_feat'.
3. If the COMPL of the secondary diagnosis contains the letter I (= inactive), there must be another diagnosis or procedure code with a DGPROP value that activates the current COMPL according to the table 'compl\_name' (column 'inclprop'). DGPROP values for diagnosis codes are shown in the table 'dg\_feat' and DGPROP values for procedure codes are shown in the table 'proc\_feat'.
4. The current principal diagnosis must not be present on the exclusion list for the current, activated or primarily active, COMPL as shown in the table 'compl\_excl'.

## 6. MDC 98 Diseases of the male or female genitals

ICD-10 includes a number of diagnosis codes that are the same for men and women despite the fact that it is about diseases of the genital tract. These have been collected in the MDC 98 and they all have a diagnostic category (DGCAT) value that begins with 98M. The groupers are hard-coded to change 98 to 12 if the patient is a man and to 13 if it is a woman and this happens before the patient data are compared with those found in the grouping rules in the table 'drg\_logic' table.

*Example:* Diagnosis code A630 'Condyloma acuminatum' has DGCAT 98M03, which is changed to 12M03 for men and to 13M03 for women.

## 7. How to find out the content of a DRG

- Open the table 'drg\_logic' and select the DRG to be studied by using Excel's autofilter in the head of the column '**drg\_nat**' or '**drg\_comb**'. *You should not use the "find and mark" function (magnifying glass icon) because there can be multiple rules (lines) that lead to the same DRG and these lines can be scattered in various places in the table.*
- See in the columns from '**icd**' to '**disch**' what the requirements are for the grouping to the current DRG. Keep in mind the meaning of the letters in the column '**or\_proc**' that are described in the chapter about the table 'drg\_logic' on page 3.
- Open the table for diagnoses, 'dg\_feat', and/or the table for procedures, 'proc\_feat', and use the Excel's autofilter in the head of the column '**varval**' to find all the codes with the necessary grouping properties. Keep in mind that there are procedure codes that have diagnosis properties (dgprop). (Note that the diagnosis and procedure codes found in this way not always are limited to that specific DRG. With other combinations of diagnosis and procedures they can also be included in other DRGs.)

### ***Problem with the combination of OR property and procedure property (procpro)***

Many grouping rules demand both OR property and a procedure property (procpro). The separate column for the 'or' value in the table 'proc\_feat' makes it possible to filter out all procedure codes with a certain procedure property in the column 'varval' and at the same time see their 'or' value. Sometimes a procedure code meets the requirement of procedure property but it lacks OR property. You should then be aware that the OR property may be added to the patient data through another procedure code.

### ***Problem with some empty fields in the column 'dgcats' in table 'drg\_logic'***

Sometimes the grouping rule requires a diagnosis code in a specified MDC (which appears in the column '**mdc**') but the '**dgcats**' field is empty. This could be interpreted as that the rule accepts any diagnosis code in the current MDC but that is seldom true. You then have to check if there are any



rules with a specified diagnostic category, but otherwise identical, above the current row. If there are such rules, the empty field '**dgc**' shall be read as "residual diagnosis categories in the current MDC". Often, but not always, it is a diagnostic category that ends with M99.

## 8. How to see which DRGs a diagnosis or procedure code can be grouped into

This instruction is valid for principal diagnoses only. Codes for secondary diagnoses can be grouped into any group whatever.

- Open the table 'dg\_feat' or 'proc\_feat', respectively, and filter out the code to be studied.
- Notice what grouping properties the selected code has.
- Open the table 'drg\_logic' and filter out the current grouping properties in the columns from '**mdc**' to '**dgprop4**' (with the exception of column 'compl'). The DRG, or DRGs, that can be considered is then shown in the columns '**drg\_nat**' and '**drg\_comb**'.

*The problem with empty fields in the column 'dgc' in table 'drg\_logic' is similar as described above.* If the selected diagnosis code has a diagnosis category that does not match any value in the column 'dgc' you can match on the MDC value instead, but exclude all DRGs that demands a specific diagnosis category.

It is time consuming and risk for mistakes to find out the content of a DRG or the DRGs a diagnosis/procedure code can be grouped into with the methods described above. In Sweden, it is instead recommended to use the application "NordDRG Explorer".