NordCase
nordic casemix centre

How to write technical changes for NordDRG

To be able to write correct technical changes (TC) it is necessary to know how the grouping process in NordDRG is controlled by its definition tables. If you do not have this knowledge, you should first read the document "How to read NordDRG definition tables".
You should also consider the overall DRG development guidelines at the end of this document.

Proposed or decided technical changes shall be documented in Excel format according to the template for changes that the Nordic Casemix Centre (NCC) provides (TC_TEMPLATE_2021-12-08_.xltx)[1].
The TC template is in the Excel template format (xltx). Double-clicking on the file opens a copy to work in and the template itself is not changed. Your working copy should be named "TC" plus the ID of the case. Use your national ID and the NCC ID (= the Forum ticket/case number) if it is known (e.g. TC_C750_#759.xlsx).
Note that reporting of any analyzes should not be included in the TC file. This must be reported separately in a file with the name "Appendix" plus the ID of the case.

The TC template is in principal an empty copy of the definition tables in Excel format, but with some extra columns in each table:

- Two columns for the change instruction (version to change & IN/OUT). The column "version to change" is motivated by the fact that Norway and Sweden have separate update processes in parallel with NCC's process in NDMS.
- One column for the NCC ID of the proposal/decision according to the number of the case on NordDRG Forum (if the case is published there).
- One column for the national ID-designation (nat_id) according to your own system.
- One column for possible comments.

The TC template includes a tab called "read_me" with short instructions and space where you should write the name of the case, its ID-designations and possible comments. Read the instructions carefully.

1. General instructions

These general instructions are valid for all of the definition tables. Instructions that are specific to the individual tables are presented below.

- **Changing of present data**
  Any change of a row in any definition table must appear twice. First, in the existing definition tables, copy the row you want to change and paste the row into the corresponding table in the TC template. When pasting, be careful that the codes and texts get into the right columns. In the column IN/OUT, write OUT. Then you paste the same row again, but change the code or text in the fields you want to change and in the column IN/OUT of this row, you write IN. Always fill in National ID on both rows and also the NCC ID (= the Forum ticket/case number) if it is known.

[1] http://documents.norddrg.net/attachments/download/2153/TC_TEMPLATE_2021-12-08_.xltx

Short comments (for example “wrong PROCPRO” on the row for OUT and “right PROCPRO” on the row for IN) facilitate for others to see what should be changed, especially when changes are made in the table ‘drg_logic’ where there are many columns.

- **Introduction of completely new data**
  Write only one row that you make up yourself. Write IN in the IN/OUT column. Also, in this case, fill in National ID and possible NCC ID and comments. To reduce the risk of typos and the risk of Excel changing the cell format from text to numeric format, it may be wise to copy a similar line from the definition tables and then make changes to it.

- **Deletion of existing data**
  Copy the row at issue into the template and write OUT in the IN/OUT column. Also, in this case, you fill in National ID and possible NCC ID and comments.

2. Instructions for the table ‘drg_logic’

In this table, you fill in wanted changes of rules, deletion of rules or insertion of new rules. It may as well concern deletion or introduction of a complete DRG or a change of the content of a DRG through changes in the existing rules. It may also concern moving an existing rule up or down in the table by changing the ORD value of the rule.
Note! All new DRGs must also appear in the table ‘drg_name’ and all new categories or properties inserted in the drg_logic table must appear in the tables: ‘dgcat_name’, ‘dgprop_name’, ‘pdgprop_name’ or ‘procprop_name’ respectively, depending of the type of property!

Below are described which principles apply for the different columns in the table.

- **Column ‘ord’**
  The value decides the place of the grouping rule in the table. The ORD value has only digits (no letters) but the field shall anyhow be in text format. For a correct grouping, the table ‘drg_logic’ must be sorted according ORD as if the values were digits even though the format is text. The ORD value can be preliminary but must be written so that the rule comes on the right place in the hierarchy (see guidelines below). Select a value of your choice that is greater than the value of the row above but smaller than the row below. A definite value will later be constructed in NDMS according to a special algorithm.
  For easier understanding of the suggested position of a new rule, the rule above and the rule below can be inserted, but the field 'in/out' must then have a dashed or dotted line. **Note**! All such rows must be deleted in the TC for the Swedish NordDRG Admin.
  If the change of a rule is just a minor error correction of the content of the rule, i.e. only correction in a single field in the rule, the old ORD value can be reused. Then you write the same ORD value on the line "IN" as you have on the line "OUT".

  When deciding the place of a rule you should consider the following guidelines:

  1. In each MDC area, the rules for surgical DRGs should precede the conservative DRGs because otherwise there is a risk that the surgical cases are grouped to a conservative group. If there are special reasons to deviate from this principle, you have to prevent that the surgical cases are grouped to a conservative group by writing N or Z in the column ‘or_proc’ (see “Column or_proc” below).

2. In DRGs that are divided in different levels of complication, the rules for "Very complicated" must precede the rules for "Complicated", which in turn must precede "Not complicated".
3. The rules for surgical DRGs in respective MDC area should be ranked after their DRG-weight, highest weight first, otherwise cases with both a major and a minor operation are grouped to the DRG for the minor operation. In this ranking, use the weights from the "Not complicated" groups if there is a division in different levels of complication.
4. The rules for grouping of non-surgical procedures (mostly present in outpatient health care) should be ranked according to DRG-weight (highest weight first) since there can be more than one procedure during the same visit.
5. In DRGs that are divided in different age classes, it is most common (but not mandatory) that the group for adults precede the corresponding group for children.
6. If possible, avoid placing a rule immediately before or immediately after an existing rule. It is good to have a bit of space between the rules since that facilitates the introduction of new rules later. This space is created automatically in NDMS but should be taken into account in the national systems, such as NordDRG Admin.
7. The principle above has not always been taken into account, so sometimes it may be necessary to move one or more existing rules to get a new rule into the right place. Such a move of rules is done by changing the ORD value of the rules.
8. If the OR-property for a procedure code that is involved in a rule is changed from "1" to something else, you have to consider insertion of a rule with 00X10 for the procedure property for that code. This rule is a copy of the existing rule but the value S in the column 'or_proc' is deleted and 00X10 is inserted in the first empty 'dgprop' field. Such a rule is usually placed immediately after the existing rule with S in the column 'or_proc'. (See also DGPROP 00X10 'General anesthesia' on page 11.)

- **Column 'id'**
  The value should start with three characters, usually digits, followed by the letter D and additional five-seven digits, i.e. in total nine-eleven characters. For the initial characters, a certain systematic applies according to the following:
  - **#00D** refer to national Swedish rules for primary health care
  - **000D** refer to general rules for validation of patient data and that lead to DRG 470 (= a Z-DRG in Swedish version).
  - **014D** refer to rules for validation of patient data where the principal diagnosis belongs in MDC 13 or 14 and that also leads to DRG 470 (= a Z-DRG in Swedish version).
  - **015D** refer both to rules for validation of patient data where the principal diagnosis belongs in MDC 15 and so called pre-MDC-rules for MDC 15.
  - **100D** refer to so called pre-MDC-rules for outpatient health care or short term health care.
  - **101D through 123D** refer to rules for outpatient health care/short term health care where the principal diagnosis belongs in MDC 01-23. The figures in position 2 and 3 show the MDC-belonging.
  - **190D** refer to so called post-MDC-rules for outpatient health care or short term health care.

- **191D through 199D** refer to national Norwegian rules for outpatient health care or short term health care.
- **199D** in Swedish version refer to rules for rare or incorrect combinations of principal diagnosis and procedure in outpatient health care.
- **200D** refer to national Swedish rules for outpatient health care.
- **400D** refer to so called pre-MDC-rules for inpatient health care.
- **401D through 423D** refer to rules for inpatient care where the principal diagnosis belongs in MDC 01-23. The figures in position 2 and 3 show the MDC-belonging.
- **490D** refer to so called post-MDC-rules for inpatient health care.
- **499D** refer to rules for rare or incorrect combinations of principal diagnosis and procedure in inpatient health care.

When you construct a new rule, you write a new value that should be unique. Check in the latest Combined version that the value does not exist already.

If the change of a rule is just a minor error correction of the content of the rule, i.e. only correction in a single field in the rule, the old ID value can be reused. Then you write the same ID value on the line "IN" as you have on the line "OUT".

- **Column 'drg_nat'**

Here you write the DRG-code (maximum four characters) that the rule should lead to. In the Swedish version there is certain systematics for the DRG-codes according to the following.

- The letter in the first position denotes the MDC-belonging of the group according to the table below. The letter I is not used since it is easily mistaken for the figure 1. The remaining letters of the English alphabet are not sufficient for all MDC. That is way R stands for both MDC 16 and 17, and the letter U stands for both MDC 21 and 24.

Letter	MDC	Letter	MDC
A	01	O	13
B	02	P	14
C	03	Q	15
D	04	R	16
E	05	R	17
F	06	S	18
G	07	T	19
H	08	U	21
J	09	V	22
K	30	W	23
L	10	U	24
M	11	X	40
N	12	Y	50
O	13	Z	99

- The digits in position 2 and 3 are serial numbers where 75 and higher are mostly Swedish groups.
- The letter in the 4th position refers to both type of health care (inpatient, outpatient or primary care) and level of complication according to the table below.

Letter	Type of health care	CC-division	Type of contact in outpatient care
A	Inpatient	Very complicated	
C	Inpatient	Complicated	
E	Inpatient	Not complicated	
N	Inpatient	No CC-division	
O	Outpatient	No CC-division	Individual visit
P	Outpatient	Complicated	Individual visit
Q	Outpatient	Not complicated	Individual visit
X	Outpatient	No CC-division	Team visit
Y	Outpatient	No CC-division	Group visit
Z	Outpatient	No CC-division	Distance contact
T	Primary care Outpatient	Complicated	Individual visit
S	Primary care Outpatient	Not complicated	Individual visit
R	Primary care Outpatient	No CC-division	Individual visit
U	Primary care Outpatient	No CC-division	Team visit
V	Primary care Outpatient	No CC-division	Group visit
W	Primary care Outpatient	No CC-division	Distance contact
L	Primary care Inpatient	No CC-division	

A general principle in the Swedish system is that identical DRG-codes on three-character level indicates identical main medical problems.

- **Column 'drg_text_nat'**
  Here you write the DRG-text but that is only to make it easier for others to understand what DRG the suggestion is about. Changes of the DRG-texts and texts to new DRG must be defined in the table 'drg_name' in the TC template as described below.

- **Column 'drg_comb'**
  Here you write the DRG-code (according to the principles in the Combined version) that the rule should lead to.

- **Column 'rtc'**
  This is part of the grouping result. Here you write the RTC-code that should apply for the rule. Which codes there are to choose from is apparent from the definition table 'rtc'.

- **Column 'icd'**
  Here you write a plus sign if the rule shall demand a diagnosis code. In the Swedish version, it is mandatory to have a principal diagnosis for inpatient DRGs, for DRGs for doctor visits and for DRGs for team visits. There are a number of rows where the field is empty and these rules lead to DRGs in outpatient health care mainly intended for other professional categories than doctors. These professional categories have no legal obligation to report diagnosis in Sweden.
  In a few rules there is a minus sign but that only refers to the validation rules leading to DRG 470 (in Sweden DRG Z70) when a principal diagnosis is missing.

- **Column 'mdc'**

In the grouping process, the variable type (vartype) MDC is generated by the principal diagnosis and the variable value (varval) is retrieved from the definition table 'dg_feat'. Note that this MDC value does not necessarily have to be the same as the MDC affiliation of the DRG code.
A diagnosis code can only have one single value for MDC and the value is always the same as the two first characters in the DGCAT value for the diagnosis code.
When constructing rules the following apply:
If the field ICD is empty (or has a minus sign) the MDC field must be empty as well. If the field ICD has a plus sign, you can specify here which MDC the principal diagnosis should belong to. The variable value is then written with two digits in text format so it will be 01, 02, 03 etc. The Excel program often converts the written value to digit format and then the zero disappears. It is easiest then to copy the value from the existing definition table and paste it in with preserved format.
If the mdc field is left empty (and the icd field has a plus sign) it means that the rule accepts any principal diagnosis as long as you do not specify the demand for principal diagnosis in one of the columns 'dgcat' or 'pdgprop' (see below).
Note! There must be only one MDC value for each diagnosis in a national NordDRG version.

- **Column 'dgcat'**
  In the grouping process the variable type (vartype) DGCAT is only generated by the principal diagnosis and the variable value (varval) is retrieved from the definition table 'dg_feat'.
  When constructing rules the following apply:
  The field is filled in when you want to construct rules for conservative DRG for which the grouping should be directed by the DGCAT of the principal diagnosis code or when constructing rules for surgical DRGs where you want more specific requirements of the principal diagnosis than only MDC. If possible, use an existing DGCAT value from the definition table 'dgcat_name' (check the Combined version).
  If a new DGCAT value is needed, it should be written with five characters, first two digits and last two digits and in between them the letter M. The first two digits should be the same as the MDC-belonging of the diagnosis code, while the last two are serial numbers. If you construct a new variable value of the type DGCAT, it has to be inserted in the 'dgcat_name' table in the TC template and the diagnosis codes that should have the new DGCAT value must be inserted (with the new value) in the 'dg_feat' table in the TC template.
  Note! There must be only one DGCAT value for each diagnosis in a national NordDRG version.

- **Column 'pdgprop'**
  In the grouping process the variable type (vartype) PDGPROP is generated by the principal diagnosis and the variable value (varval) is retrieved from the definition table 'dg_feat'. A diagnosis code can have several PDGPROP values. Thus, the patient data can generate more than one PDGPROP. Which of these that will be used in the grouping depends on the hierarchy in the table 'drg_logic' and how the PDGPROP values are combined with other grouping demands. The variable type PDGPROP makes it possible to construct rules that group cases with a certain principal diagnosis to other DRGs than that which the DGCAT of the diagnosis code lead to.

  When constructing rules the following apply:

The field is only filled in if you want to construct special rules. It can be that only some of the diagnoses with a certain DGCAT should lead the grouping. It is also possible to construct rules for principal diagnoses with different DGCAT values.
If possible, use an existing variable value from the definition table 'pdgprop_name' (check the Combined version). If a new variable value is needed, it should be written with five characters where the two first and the two last are digits and in between there should be the letter P. The first two digits should be the same as the MDC-belonging for the DRG that the rule should lead to, while the last two figures are serial numbers.
If you construct a new variable value of the type PDGPROP it has also to be introduced in the table 'pdgprop_name' in the TC template and the diagnosis codes that should have the new variable value must be introduced (with the new variable value) in the 'dg_feat' table in the TC template. **Note**! If a PDGPROP value is used in a rule, both the MDC and the DGCAT fields must be empty.

- **Column 'compl'**
  In this field it is stated if the rule demands CC-property. CC-property 1 leads to a DRG of type "complicated" and CC-property 2 that leads to a DRG of type "very complicated".
  In the grouping process CC-property 1 can be generated by a few procedure codes with the variable type (vartype) CC and the variable value (varval) = 1. They are retrieved from the definition table 'proc_feat'. In most cases though, the CC-property is generated by a secondary diagnosis (never by the principal diagnosis). If the diagnosis code has the variable type (vartype) COMPL (retrieved from the definition table 'dg_feat') and the principal diagnosis is not in the exclusion list for the COMPL value in question, CC-property 1 is generated if the COMPL value contains the letter C, alternatively CC-property 2 if the COMPL value contains the letter G.
  Some diagnosis codes have a variable value with the letter I, which is an inactive CC-property. In this case, to activate the CC-property for a COMPL value with the letter C, an additional diagnosis is required with a certain property according to the column 'inclprop' in the definition table 'compl_name'.
  When constructing rules the following apply:
  If the rule applies to a DRG of the type "very complicated" you write 2 in the field and if the rule applies to a DRG of the type "complicated" you write 1 in the field. Otherwise it should be empty. The rule for "very complicated" should always be placed before the rule for "complicated", which in turn should be placed before "not complicated".
  If you want to add, delete or change CC-property for procedure codes you write it in the table 'proc_feat' in the TC template.
  If you want to add, delete or change CC-property for diagnosis codes you write it in the table 'dg_feat' in the TC template.
  If possible, use an existing COMPL value from the definition table 'compl_name' (check the Combined version). If a new value, i.e. a new complication category, is needed, it should be written with five characters where the two first and the two last are digits and in between there should be the letter C, G or I depending on if CC-property 1 or 2 should be able to be generated or if it is an inactive CC-property. The first two digits should be the same as the MDC-belonging of the diagnosis code. The last two digits are serial numbers, but for complication categories of the type "without exception" you should choose 80 or higher. A complication category of the type "without exception" should only contain one diagnosis (can possibly contain more diagnosis codes if

these are variants of the same diagnosis and the variants are of equal severity grade) otherwise it will not be "without exception" due to the exclusion list (see below).
Note! There should be only one COMPL value for each diagnosis in a national NordDRG version (there is actually no need to have more than one COMPL value).
If you construct a new variable value of the type COMPL, it must be put IN in the table 'compl_name' in the TC template where you, in the column 'inclprop', also specify the variable value needed for activation if it is an inactive COMPL. The diagnosis codes that should have the new variable value must be introduced (with the new variable value) in the 'dg_feat' table in the TC template.

In all changes of complication category (COMPL) of diagnosis codes, and when introducing a new complication category, you have to make changes in the exclusion list. This is performed in the table 'compl_excl' in the TC template. The main principle is that diagnosis codes belonging to the same complication category should not be able to complicate each other and that you should never get a complicated DRG by registering the same diagnosis code twice. This means that all diagnosis codes with the same COMPL value also should be present in the exclusion list for this COMPL value, but nothing prevents you from adding more diagnosis codes unless the COMPL value is of the type "without exception" (varval ends with 80 or higher). Note the parallel between COMPL with C and COMPL with G. For each COMPL with the letter G there is a corresponding COMPL (with the same digits) with the letter C and a diagnosis code that should be introduced in the exclusion list has to be introduced in both places.

- **Column 'or_proc'**
  In the grouping process, the variable type (vartype) OR can be generated by one of the procedure codes in the patient data and the variable value (varval) is retrieved from the definition table 'proc_feat'. The variable value can be either 0, 1 or 2. Codes for major procedures usually performed in an operation room have the value 1, while major procedures usually performed in outpatient health care have the value 2. Minor procedures have no OR-property (= 0).
  <u>When constructing rules the following apply:</u>
  You write none of the variable values 1 or 2. Instead, when needed, you use a letter according to the following:
  - S = OR with the value 1 is required for at least one of the procedure codes in the patient data. S is used in rules for surgical DRGs.
  - P = OR with the value 1 or 2 is required for at least one of the procedure codes in the patient data. P is usually used in rules for outpatient health care or short term health care.
  - N = OR with the value 1 must not occur but the value 2 is allowed. N is used when constructing rules for conservative DRGs in inpatient health care.
  - Z = No OR may occur, neither with the value 1 or 2. Z can be used when constructing rules for conservative DRGs in outpatient health care.

  See below how the variable type OR can be combined with PROCPRO.

- **Column 'procpro'**
  In the grouping process, the variable type (vartype) PROCPRO can be generated by one or more of the procedure codes in the patient data and the variable values (varval) are retrieved from the definition 'table proc_feat'. (In older versions of NordDRG, there were also some diagnosis codes with a PROCPRO value.) A procedure code can have several values for PROCPRO. The patient

data can therefore generate more than one PROCPRO. Which of them that is used in the grouping process is due to the hierarchy in the table DRGLOGIC and how the PROCPRO values are combined with other requirements in the grouping rules.

When constructing rules the following apply:

The field is only filled in if you want to construct a rule for a procedure related DRG. If possible, use an existing variable value from the definition table 'procprop_name' (check the Combined version). If a new variable value is needed, it should be written with five characters, the first two and the last two are digits and in between them, there should be a letter according to the following:

- S – used in all versions, both in inpatient and outpatient rules, mainly for surgical procedures, but also for some resource intensive non-surgical procedures.
- E – used in all versions in short term and outpatient rules, mainly for endoscopic procedures.
- V – used in the Swedish and Norwegian versions in rules for other procedures.
- O – used in the Norwegian version in rules for other procedures.
- D – used in the Finnish version in rules for other procedures.

The first two digits should be the same as the MDC-belonging of the procedure, while the last two are serial numbers.

If you construct a new variable value of the type PROCPRO it must also be inserted, with IN, in the table 'procprop_name' in the TC template and the procedures that should have the new variable value must be inserted, with IN and the new variable value, in the table 'proc_feat' in the TC template.

There are ICD codes with a text that looks like a procedure but one should avoid giving PROCPRO to diagnosis codes since the diagnosis does not necessarily mean that a procedure has been performed. The diagnosis text is then just an indication of the purpose of the health care contact.

When constructing rules it is common that you combine the variable types OR and PROCPRO in different ways. See examples in the table below.

OR	PROCPRO	How to understand the combination
	06S01	All procedure codes with PROCPRO 06S01, irrespectively of any OR property
S	06S01	Only procedure codes with both PROCPRO 06S01 and OR = 1 or one code with 06S01 and another code with OR = 1
S		All procedure codes with OR = 1, irrespectively of any PROCPRO
	06E03	All procedure codes with PROCPRO 06E03, irrespectively of any OR property
P	06E03	Only procedure codes with both PROCPRO 06E03 and OR = 1 or 2, or one code with 06E03 and another code with OR = 1 or 2
P		All procedure codes with OR = 1 or 2, irrespectively of any PROCPRO

For procedures without OR = 1 that sometimes are performed in general anesthesia you should construct specific rules. See the section DGPROP 00X10 'General anesthesia' on page 11.

- **Column 'secpro'**

  The variable type (vartype) in this column is the same as in the column procpro, i.e. PROCPRO. In the grouping process the variable type is generated by a possible additional procedure code

besides the first (=secondary procedure) and the variable value is retrieved from the definition table 'proc_feat'.
When constructing rules the following apply:
The field is filled in if you want to construct a rule with the demand that there should be a secondary procedure, but it can also be used to state limitations.

- A specified PROCPRO value means that there must be a secondary procedure with this property.
- A minus sign before the PROCPRO value means that there must not be a secondary procedure with this property.
- A plus sign without a specified PROCPRO value means that there must be a secondary procedure with OR=1.
- A minus sign without a specified PROCPRO value means that there must not be a secondary procedure with OR=1.

- **Columns 'dgprop1', 'dgprop2', 'dgprop3' & 'dgprop4'**
  These columns are used for both the variable type (vartype) DGPROP and the relatively new variable type (vartype) SDGPRO (second diagnosis property).
  In the grouping process the variable type (vartype) DGPROP can be generated by the principal diagnosis as well as any secondary diagnosis or procedure. The variable values (varval) are retrieved from the definition tables 'dg_feat' and 'proc_feat'. The reason why procedure codes can have DGPROP values is that there are only two fields for the vartype PROCPRO in the table 'drg_logic', which limits the ability to construct rules for combination of procedures.

  The variable type (vartype) SDGPRO is generated only by the first secondary diagnosis and the variable values (varval) are retrieved only from the definition table 'dg_feat'.

  When constructing rules the following apply:
  One or more of these fields are filled in if you want to construct rules based on more variable types than the ones mentioned in the sections above. Thus, with these fields you can construct complicated grouping rules that demand different combinations of diagnosis and procedures.
  It is also possible to construct rules based on a specific second diagnosis, which may be needed when a medical condition is described with a nonspecific primary diagnosis plus a more specific second diagnosis.
  If possible, use existing variable values from the table 'dgprop_name' in the definition tables (check the Combined version).
  If a new variable value of the type DGPROP or SDGPRO is needed, it should be written with five characters with the first two and the last two being digits and in between them should be the letter X for DGPROP and the letter K for SDGPRO. The first two digits of the DGPROP value should be the same as the MDC of the diagnosis code or procedure code, while the last two are serial numbers. The first two digits of the SGPRO value should be the same as the MDC of the diagnosis code, while the last two are serial numbers.

  If you construct a new variable value of the type DGPROP or SDGPRO, it has to be introduced with IN in the table 'dgprop_name' in the TC template. The diagnosis codes and the procedure codes that should have the new PDGPROP value must be inserted, with the new variable value, in the tables 'dg_feat' and 'proc_feat' respectively, in the TC template. The diagnosis codes that

should have the new SDGPRO value must be inserted, with the new variable value, in the table 'dg_feat' in the TC template.

Note! There must be only one DGPROP value ending with X99 and only one SDGPRO value ending with K99 for each diagnosis, but otherwise a diagnosis may have several DGPROP and SDGPRO values and a procedure may also have several DGPROP values.

DGPROP 00X10 'General anesthesia'
There are many procedure codes with specified PROCPRO but without OR property. The principle is that they should be grouped as if they had OR property if they are performed in major anesthesia. If you construct a rule demanding OR (S or P) and a certain PROCPRO and there are procedure codes with this PROCPRO but without OR-property, you have to construct an extra rule. This rule is made like a copy of the rule with S or P and PROCPRO, but with the field OR empty and 00X10 in the first vacant field for DGPROP. This extra rule should be placed immediately after the corresponding rule with S or P.

- **Column 'agelim'**
  In the grouping process, the age of the patient is retrieved directly from the patient data where the age should be given in days at the date of admission in inpatient care or the date of the visit in outpatient care.
  When constructing rules the following apply:
  The field is filled in when you want to construct rules for a certain age category, for example when a DRG is divided in one group for adults and one group for children. In most cases you put the row for adults with AGELIM >6574 before the rule for children. In the rule for children, of course, you do not need to set an AGELIM, because all adults are grouped according to the previous rule.
  If possible, use one of the existing age limits, which are:

Agelimit, days	Used for
>7	Age limit in MDC 15
<8	Age limit in MDC 15
>28	Age limit in MDC 15
<29	Age limit in MDC 15
<365	Age limit in MDC 15
>365	Age limit in MDC 15
<4018	Age limit in MDC 14
<5114	Age limit for adult diagnosis
>6574	Age limit between children and adults
<6575	Age limit between children and adults
>10957	Age limit in MDC 19
>13148	Age limit in diabetes
>21915	Age limit in MDC 14 and 19
>45654	Impossible age (= 125 year)

If needed, you can define new age limits. To compensate for leap years you should calculate one year as 365,25 days. Ten years should thus be stated as 3653 days.

- **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 one of the sexes. Therefore this column is empty but it has still a function and cannot be deleted. 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. If you want to construct a rule that only apply for one sex, you state that in this column by writing F for women and M for men.

- **Column 'dur'**
  In the grouping process the duration of the health care is retrieved from the patient data where it should be stated as number of health care days, meaning the date of discharge minus the date of admission plus one day. A patient that is admitted and discharged the same day thus have the duration = 1, while a patient in outpatient care always have the duration = 0.
  When constructing rules the following apply:
  In rules for outpatient health care you write <1 and in rules for short inpatient care (not used in the Swedish version) you write <2. In rules for inpatient health care you can write >0 (or >1 if you have rules for short inpatient care) but in most cases it is not necessary. If the corresponding contact in outpatient/short inpatient care already has been grouped to an outpatient- or short term DRG by rules that are higher in the table drg_logic, it is unnecessary to specify duration in the rule for inpatient health care.
  However, you should be restrictive in constructing DRGs that are related to duration of the health care. According to an established DRG principle the same medical problem in inpatient health care should be grouped to the same DRG, regardless of duration of the care.

- **Column 'disch'**
  In the grouping process, the way that the patient was discharged is retrieved from the patient data and should be stated according to the following:
  E = discharged dead
  N = discharged alive
  R = transferred to another hospital
  When constructing rules the following apply:
  In all rules for outpatient health care there should be an N in the column since you cannot send a dead patient home. Otherwise the field can be empty or with the letters above when needed.

3. Instructions for the table 'dg_feat'

Here you enter all wanted changes concerning grouping properties of diagnosis codes. This concerns the variable types MDC, DGCAT, PDGPROP, COMPL, DGPROP and SDGPRO. The principles for these variable types have been described above under respective heading in the table 'drg_logic'.

The code texts in this table are just for information. Possible text changes are done in the table 'dg' in the TC template.

Note 1. There must be only one MDC value and one DGCAT value for each diagnosis in a national NordDRG version and the first to digits in the DCAT value shall be the same as the MDC value.

Note 2. There should be only one COMPL value for each diagnosis in a national NordDRG version.

Note 3. There must be only one DGPROP value ending with X99 and only one SDGPRO value ending with K99 for each diagnosis, but otherwise a diagnosis may have several DGPROP and SDGPRO values.

4. Instructions for the table 'proc_feat'

Here you enter all wanted changes concerning the grouping properties of procedure codes. This concerns the variable types OR, PROCPRO, CC and DGPROP. The principles for these variable types have been described above under respective heading in the table 'drg_logic'.

The code texts in this table are just for information. Possible text changes are done in the table 'proc' in the TC template.

5. Instructions for the table 'compl_excl'

Here you enter all wanted changes concerning the exclusion criteria for diagnosis codes with COMPL. See the end of the section "Column compl" above. Note the parallel between COMPL with C and COMPL with G. COMPL with the same digits (regardless of the letter in the middle) must have the same exclusion criteria.

6. Instructions for the table 'compl_name'

Here you enter all wanted changes concerning the complication categories. It may concern deletion of existing COMPL, introduction of new COMPL, changes of code texts or changes of inclusion criteria for inactive COMPL. The principles for the variable type COMPL have been described above under the heading "Column compl".

Note the parallel between COMPL with C and COMPL with G. For each COMPL with the letter G there should be a corresponding COMPL (the same digits) with the letter C.

7. Instructions for the table 'drg_name'

Here you enter wanted deletions or additions of DRG and changes in DRG-texts. The Swedish principles for the DRG codes have been described above under the heading "Column drg_nat". The Swedish principles for DRG-texts are the following:

- The text should preferably, in overview, summarize what is included in the group but this is often impossible due to heterogeneous content. Some texts would be unwieldy long if you take in all that is included in the group. You can then settle for inclusion of the most common conditions. If possible, you should use laymen texts since it should be understandable also by others than health care professionals.
- For surgical DRG you should try to avoid using the term "lesser operation" since there are quite disparate views among surgeons on what is "lesser". For psychological reasons the term "other operations" is better.

- For DGR that are divided in different levels of complication the main texts for the subgroups should be the same, but with the respective addition of “very complicated”, “complicated” and “not complicated”. The same principle applies to the short texts but the addition is then only one letter, namely M, K and U respectively.
- For outpatient DRGs of the type day surgery, or with comparable dignity, the text should end with “öppenvård” (=outpatient health care). For the other outpatient DRG the text should include “besök” (=visit). The short texts should have the letter O in the end regardless of the dignity.
- For DRGs intended for primary care the word “primärvård” (=primary care) should be in the text.

The short texts should maximum have 32 characters (including blank spaces).

8. Instructions for the table ‘mdc_name’

Deletion of a MDC or insertion of a new MDC occurs very rarely but when it happens the changes must be entered in this table. In addition, text changes must be entered in this table.

9. Instructions for the table ‘dgcat_name’

Here you enter all wanted changes concerning the diagnosis categories. It may concern deletion of existing DGCAT, introduction of new DGCAT or change of code texts. The principles for the variable type DGCAT have been described above under the heading “Column dgcat”.

10. Instructions for the table ‘dgprop_name’

Here you enter all wanted changes concerning the variable types DGPROP and SDGPRO. It may concern deletion of existing DGPROP/SDGPRO, introduction of new DGPROP/SDGPRO or change of code texts. The principles for the variable types DGPROP and SDGPRO have been described above under the heading “Columns dgprop1, dgprop2, dgprop3 & dgprop4”.

11. Instructions for the table ‘pdgprop_name’

Here you enter all wanted changes concerning the variable type PDGPROP. It may concern deletion of existing PDGPROP, introduction of new PDGPROP or change of code texts. The principles for the variable type PDGPROP have been described above under the heading “Column pdgprop”.

12. Instructions for the table ‘procprop_name’

Here you enter all wanted changes concerning the variable type PROCPRO. It may concern deletion of existing PROCPRO, introduction of new PROCPRO or change of code texts. The principles for the variable type PROCPRO have been described above under the heading “Column procpro”.

13. Instructions for the tables ‘dg’ and ‘proc’

Here you enter changes in the national primary classifications of diagnosis codes and procedure codes respectively, which usually is done when the production version of the definition tables shall be produced.

Codes that are deleted from the national primary classifications should remain in the definition tables in another five years, but in the beginning of the code texts you write “Inactivated at DD.MM.YYYY – ” (*note the spaces around the hyphen*). The date is the last day when the code can be used in the health care, usually the last of December of the year at issue. When five years have passed, the codes should be deleted from the tables.
Codes with text beginning with “Inactivated” and with grouping properties should also remain five years in the tables ‘dg_feat’ and ‘proc_feat’. The purpose for this is that you should be able to group up to five years old patient material with the latest version of NordDRG.
Possible changes of code texts and new codes should be entered in the tables ‘dg’ and ‘proc’ with the right code texts.

NCC usually links new national codes to existing codes in ICD+ and NCSP+ via the MBC module of the NDMS. Some national codes then automatically gets grouping properties. If there is no suitable code in ICD+/NCSP+ to map to, NCC creates a new code in NCSP+/ICD+.

To facilitate NCC's work with ICD + and NCSP +, you must translate national code texts into English (if they are not already in English or Latin) when entering new codes in the tables ‘dg’ and ‘proc’. There is no special field for this in the TC template so write the texts in the column ‘comments’. Note that these English texts do not have to be officially approved. The purpose is just to explain to NCC what the code is about. In the column ‘comments’, you can also suggest an existing ICD+/NCSP+ to map to, if there is one.

Every nation is expected to suggest or decide grouping properties of the new codes. You do that by writing instructions in the tables ‘dg_feat’ and ‘proc_feat’ in the TC template. If new variable values (VARVAL) are needed the principles for the different variable types (VARTYPE), described above, apply.

Note! All new diagnosis codes that get COMPL, also must be entered in the table ‘compl_excl’ in the TC template (see the end of the section “Column compl” above).

14. About the table ‘testcase’

The table is used by NCC in the certification process for commercial groupers. To be certified, a grouper has to produce the same grouping result as the master Nordic grouper.
It is recommended that all change proposals should be accompanied by a simulated case that is affected by the change. This is especially important in all changes in the table ‘drg_logic’. Look at the latest set of definition tables from NCC to see how the table should be filled in.

15. Overall DRG development guidelines

Guidelines for development of the NordDRG system have been published on the old Forum (http://www.norddrg.net/norddrgforum/HTML/index.html?criteria.htm) and also discussed on the present Forum (Questions and answers #725: “DRG splitting criteria”). Therefore only a brief summary here.

- **The basic idea of all DRG systems**: Patient cases are to be assigned to clinically relevant groups with least possible variance in cost.
- **Not too many groups**, otherwise the system will be hard to survey. Like other DRG systems, NordDRG is a rough description tool. Primary classifications can be used for more detailed description of the health care.

- **Not too <u>small</u> groups**, otherwise calculated cost weights will be unreliable and with large variations between the years. The guidelines on the old Forum says that there should be not less than 40 cases per 1 million episodes of care. When splitting a DRG, the number of contacts in the smallest new DRG should be at least 3% of the number in the original DRG.
- **Average cost** should differ at least 20 % to motivate a DRG split for economic reasons, e.g. a split into "without CC" and "with CC" or a split into "with CC" and "with MCC". This means that average cost should differ at least 44 % between "without CC" and "with MCC". According to the guidelines on the old Forum, there should be at least 5 % reduction in standard deviation of cost in the largest new group and the coefficient of variation may not be more than 1.3 times higher in any of the new groups compared with the original group.
  Author's comment: If the case-mix of a DRG is approximately the same in all involved clinics and there is no "cherry picking", it is not necessary to make a split, even if it is possible.

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