Nordic Casemix Centre

Description of Nordic Casemix work

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1. Background and history of Nordic Casemix Center

NordDRG, the Nordic Casemix system, developed through cooperation by Nordic countries, is now widely used. The maintenance and development of the system and the administration of the NordDRG cooperation has since 1996 been carried out by the Nordic Centre for Healthcare Classifications. The Centre was instituted for cooperation among the Nordic countries and more broadly with WHO and its member countries about health care classifications. It has been situated at Uppsala University. The NordDRG work has been performed as collaboration of the system owners, the Nordic Countries.

The national owner organizations are:

Country	Organisation
Denmark	Statens Serum Institut
Finland	Association of Local and Regional Authorities (Finlands Kommunförbund)
Iceland:	Ministry of Welfare (Heilbrigðis- og tryggingamálaráðuneytið)
Norway	Norwegian Directorate of Health Directorate (Helsedirektoratet)
Sweden	National Board of Health and Welfare (Socialstyrelsen)

Nordic Casemix cooperation´s goals are

1) to gather the Casemix and classification expertise and enhance the professional development and mutual learning The policies must be based on an active cooperation and a steered process that guarantees continuity in expertise in healthcare classifications and Casemix.
2) to provide competitive and comprehensive Casemix systems of high quality
3) to insure a transparent and cost-effective development in close collaboration with the main stakeholders
4) Ensure that the system is broadly used and well known among decision makers and health care staff and embraces all areas of Health Care.

The Nordic Casemix systems, including **NordDRG, are used**

1) to measure and describe the output of healthcare
2) to analyse resource use and patient populations
3) in benchmarking of productivity and efficiency
4) to reimburse the healthcare providers in cost controlling of healthcare

2. Roles and responsibilities of the Nordic Casemix Center

2.1 Steering group (owner group)

The NordDRG cooperation is led by a steering group. The NordDRG steering group is responsible for planning of the new organization and strategies for the future Nordic Casemix cooperation.

National healthcare organisations from all Nordic countries are the formal owners of the NordDRG system logic and the grouping rules. They form as members the Nordic Casemix Centre association.
As owners the national organisations may produce and maintain their own national adaptations based on NordDRG common definitions. The owners transfer to Nordic Casemix Centre rights to maintain and develop NordDRG system even in the case one or more members would withdraw from the cooperation.

The tasks of the owner group are:
- to support the Nordic Casemix cooperation with resources, expertise and data for the NordDRG development process
- to finance the NordDRG system maintenance and development
- to spread information about NordDRG to national stakeholders
- to promote and encourage new research work in the field
- to support and promote the international co-ordination and cooperation about case mix systems

The owner group has priority in the NordDRG cooperation but the owners also welcome different types of cooperation with other countries using Casemix systems.

The owners nominate the representatives of the steering board of the Nordic Casemix Centre with one permanent voting member from each country.

2.2 Steering board

The main task for the current NordDRG steering board is to secure that the NordDRG work can continue. This steering board is responsible for strategic decisions about maintenance, updating, documenting and development of the NordDRG system and it will continue to decide on the yearly updates for the common master version of NordDRG based on expert network recommendations.

The Steering Board of Nordic Casemix Centre formally endorses any proposed changes to the common version of the NordDRG definition tables

2.3 Other participants of the Nordic Casemix work (Estonia and Latvia)

The owners may negotiate the right to use the common NordDRG definitions by other parties interested in developing similar systems outside the Nordic countries. The conditions of such use of NordDRG outside the Nordic countries are negotiated separately with the interested parties. Software providers may use the common NordDRG definition tables for development of compatible software.

2.4 The Nordic Casemix Centre

Nordic Casemix Centre is responsible for practical work putting the decisions of the board in action. The centre co-ordinates the maintenance, updating and further development of the NordDRG system based on the strategic decisions of the steering board. The Director of the Centre reports to the steering board.

The Centre may act on behalf of the NordDRG owners as stated in the agreements. The centre:
- is preparing agreements with the NordDRG software provider(s) for the board. Matters concerning the use of the NordDRG system outside the Nordic countries may only be prepared after preliminary acceptance of the board.
- Coordinates the NordDRG expert network collaboration and arranges the meetings in the steering board and in the expert network, including a meeting secretary and necessary experts for the meetings.
- Runs the web-based discussion forum supporting the collaboration
- Is responsible for the yearly deliveries for maintaining, updating and developing of the NordDRG definitions and the electronic manual.
- Is testing of new rules and maintenance and development of the NDMS software (NordDRG Maintenance System).
- Is responsible for documentation and distribution of the information on changes to the NordDRG definitions and maintenance of the NordDRG manual system.
- Provides a NordDRG web information service and supports national NordDRG work.
- Co-ordinates and co-operates in analyses and statistical publications about NordDRG on behalf of the Nordic countries.
- Performs evaluation, testing and certification of groupers to ensure compatibility with the NordDRG definitions, according to a specified protocol
- Cooperates with the main NordDRG software provider(s) in delivering the common NordDRG version as well as national versions based on national codes, to the Nordic countries, as appropriate.

The Centre employs the necessary staff for the NordDRG maintenance, including medical (clinical) expertise with adequate knowledge of the development and redefinition of the logic rules. Other expertise is to be provided by the national owners, as appropriate.

2.5 Expert group

The NordDRG expert network is the main advisory group and forum for discussions about NordDRG maintenance, performance evaluation and development work. Meetings with the NordDRG expert network are arranged at least twice a year. The suggestions for yearly updates of the common NordDRG are based on expert network recommendations.

Members of the NordDRG expert network are appointed and financed by the participating national organisations. The members of the network are expected to have expert knowledge about DRG system and should represent clinical, economic and other relevant expertise. The number of the members in the expert network is not limited

2.6 Partners in cooperation

The key cooperative bodies for Nordic Casemix cooperation are
- National Health authorities (Ministries of Health e.g.)
- Regional Health authorities (regions/counties/municipalities)
- Health care providers (Hospital/Clinics/private providers)
- Primary Classification suppliers
- Software companies
- University and research centers

3. NordDRG updating and maintenance processes and principles

3.1 The yearly updating process

The annual maintenance and updating of the NordDRG system is performed according to a specified protocol and to a decided timetable (see NordDRG Update Process Timetable)

The yearly updating process of the NordDRG system is based on the following principles:
- The definitions are directly based on the primary classifications
- The definitions are readily accessible and transparent.
- The Steering Board of Nordic Casemix Centre formally endorses any proposed changes to the common version of the NordDRG definition tables
- The updating process is performed by qualified experts and staff with the aim to satisfy the needs of the main stakeholders of the system in the Nordic countries.

- New DRG-groups and modified rules should only be accepted if they fulfil established clinical, statistical and economic criteria
- Modifications are validated with clinical and financial data to ensure that both economic and medical (clinical) homogeneity is retained or improved
- The updating is sensitive to developments in medical practice as well as other changes to the health care system.
- NordDRG is developed in a way to retain comparability over time whenever possible
- The development in other international DRG definitions is monitored for the development of future NordDRG definitions.

3.2. Development / innovation projects

Experts from the Nordic countries will participate in joint projects. All owners have a reasonability to share knowledge on the field with the other Nordic countries. Also the steering board of Nordic Casemix Centre will work actively with development and innovation.

If the development project has been appointed by the board, can Nordic Casemix Centre´s personnel participate them even if the project is developed on the national level.

3.3. Information sharing / education / marketing

The importance of information sharing has an increasing value for the NordDRG cooperation. There is a clear need for education of different stakeholder groups and although the activity is not for profit, more organized marketing activities are necessary.
- The traditional Nordic case-mix conference will continuously be held every second year
- Planning for further information sharing, education and marketing activities should be started when the new centre is instituted
- The Nordic Casemix Centre will support national work in the member countries in this field
- Nordic Casemix Centre is participating actively in to the work in PCSI and WHO (basic classifications)

3.4 NordDRG Update Process Timetable
The timetable is planned together with expert group, Casemix Centre, Board and the commercial partners.

Issue	Time	Task
Preparation of updates and final decisions	November (the year before):	The annual schedule for updating the NordDRG system is defined in relation to the needs of the member organizations. If major changes to the NordDRG logic are to be implemented, such changes will be announced in advance. A detailed timetable with exact dates for deadlines is published yearly on the web-page of the Nordic Casemix Centre after decision taken by the Steering board the Centre in November each year
	November-February	Latest time to present discussion items and major development proposals that need to be scrutinized and analysed in depth to expert network. Analyses, testing and refinement of proposals are performed in cooperation with members of the Expert network. The NordDRG Cooperation Association distributes analyses and proposals through the NordDRG Forum.
	Late February- early March	Final proposals for all updates are available for discussion in Expert Network meeting
	March	Experts agree on recommendations for updates.
	March-April	Steering Group meeting to formally decide on updates
Implementation of updates	April	Decision on NCSP-E updates by the Board of the Nordic Centre. The NordDRG Cooperation Association documents changes in NordDRG Forum
	May:	NordDRG planning version definitions (updated NordDRG logic, not basic classifications) to be finalized by the NordDRG Cooperation Association and distributed to software supplier
	June-August:	NordDRG owners to review planning versions Updated national versions of basic classifications to be delivered to the NordDRG Cooperation Association
	September:	NordDRG prefinal version definitions (updated NordDRG logic, updated basic classifications) to be finalized by the NordDRG Cooperation Association and distributed to software suppliers NordDRG owners to review prefinal versions (September)
	October- mid November	Final (production) version of the common Nordic and national NordDRG versions to be delivered by the software supplier and accepted
	January	Implementation of updated NordDRG versions

3.5 Components of the Nordic Casemix cooperation

NordDRG definition tables
The NordDRG definition rules are represented as a set of tables available in Excel and dBase® formats. The content and use of these tables is explained in the NordDRG Manual. A NordDRG grouper has to comply with the tables and the interpretation rules in the NordDRG Manual. The definition tables for each version of NordDRG also include a test database with the correct DRG for each case in the database.

NordDRG Manual
The NordDRG Manual documents the grouping rules of the NordDRG system. The manual consists of a set of HTML and other linked files containing the documentation of NordDRG. The name NordDRG Manual, the version at issue and a copyright note referring to the Nordic Centre for Classifications in Health Care have to appear in all applications using it. No part of the manual may be modified without written permission from the Nordic Centre.

NordDRG Forum
NordDRG Forum is an edited open electronic discussion forum for questions about NordDRG and proposals for updates. The forum also contains documentation of changes made to the NordDRG system each year. The forum is freely available on NordDRG website.

NordDRG certification process
Developers interested in producing and marketing authorized NordDRG grouper software must apply for a "Certificate of Acceptance". Without this certificate the software may not be marketed as NordDRG compliant.

The specifications of the NordDRG definition tables and the NordDRG Manual may be used to produce DRG grouper software. These specifications can be used to produce grouper software using different computing languages, different architectures and for different computer platforms. Preliminary versions of the NordDRG definition tables may be used, if available. However, only the final versions of the definition tables are committed to issue. As a rule, the tables from previous years may be used for technical testing of new grouper software.

The result of DRG grouping produced by that software must be identical with the results from the Nordic reference grouper in order for a product to be considered as NordDRG compliant. After acceptance, a certificate will be issued with an announcement on the NordDRG website.

In summary, the certification process requires that the developer checks their grouper software using predefined test data to create a report of the grouping results. These are to be compared with the correct DRG grouping. The developer returns the test material together with a signed report, stating the correctness and validity of the grouping

results. In addition, the developer should be prepared to send working versions of the batch and/or interactive grouper software for additional testing to NordDRG administration.

Acceptance testing
Definition tables in dBase® format with test data are available upon request from the NordDRG Administration. The test data is to be used by developer to check their grouper software and to report the grouping results.

The test database contains the correct DRG for each case according to the Nordic reference grouper. The variables in the test database are described in the NordDRG Manual under the section "The principles of NordDRG" and further under the section "Test database input format". Since the file is delivered in standard dBase® format the structure of the file unambiguously indicates the included variables.

The software developer is expected to apply the developed grouper on the test database. The grouping result (new DRG) is added to the original test database as a new column.

Evaluation
After checking that the results are correct, the developer returns the test report together with a signed written statement stating the correctness and validity of the results. The exact version of the NordDRG definition tables that were used should be stated as well as the software version name. The developer should also be prepared to send a working version of the batch grouper software for additional testing. In the case of interactive grouper software it is the responsibility of the developer to validate that the interactive grouping results are identical to the batch grouping results.

A copy of the batch grouper software should also be sent for reference and possible additional testing. Reanalysis of the test database and testing of the grouper will be performed only occasionally. If interactive grouper software is going to be marketed, a copy of the interactive grouper software must also be sent. The developer must guarantee that the batch version and the interactive version give the same result.

The NordDRG Cooperation Association (CA) guarantees that the copies of the grouper software will not be distributed. In the case of national versions, however, the CA has the right to distribute the material to the National owner organizations for additional testing.

Certificate of Acceptance
The NordDRG Cooperation Association (CA) will check the results reported and the statement of correctness. The acceptance test is restricted to evaluation of the correctness using the predefined test data and in relation to the signed statement from the developer. No other criteria (e.g. special features, performance, and etcetera) are used in authorization of the software.

Following a successful evaluation, a "Certificate of Acceptance" is issued, testifying that the grouper software at issue conforms to NordDRG standards. These include the right to use the name NordDRG for that particular version.

The NordDRG System, the NordDRG definition tables and the NordDRG Manual are the intellectual property of the National NordDRG owners represented by the NordDRG Cooperation Association. Reference to the CA should always be made in products and documentation of products based on NordDRG definitions. In national versions of NordDRG products, a reference must also be made to the national owner of the version at issue.

Summary
The developer should request NordDRG definition tables in dBase® format including test data from the CA. The test data is to be used to check the grouper software and to report the grouping results.

For the evaluation and certification of a NordDRG grouper the following is required from the developer:

- A written and signed request for acceptance testing of NordDRG compliant groupers, including full contact information (company name, organisation/VAT-number, address, contact person).
- An appendix should to the application stating the following information regarding the grouper software:
    - version of the NordDRG definition tables used (year, national version, special version name if applicable)
    - name of definition tables used (year, national version, or special version if applicable, beta version number)
    - full name of the product intended for marketing

- A reference working software version of the grouper intended for batch grouping. An interactive version of the grouper if the developer intends to market an interactive grouper. These can be supplied on CD or through a download site (Internet/FTP).
- Original test data and new grouping results.
- A written and signed statement that the new grouper and the master version grouper produce identical results.

After acceptance a "Certificate of Acceptance" is issued following an official announcement of the issued certificate on the NordDRG website. A nominal charge for the certification process will be invoiced.

Requests for definitions and applications for certification including all relevant information should be sent to:
    Nordic Casemix Centre

e-mail: norddrg@nordcase.org

Withdrawal of certificate
If the material or reports delivered by the software developer are in any way found to be incorrect the certificate will be withdrawn. The authorization is valid as long as a particular version is used. The CA will issue a new version each year. However, if no changes are needed, no new version will be published. If the NordDRG Steering group decides that changes to the definitions are necessary, a second version may be issued in one year. The terms of delivering extra software versions (based on such updated definitions) to a third party (end user) is outside the responsibility of CA.

Other terms
It is expected that each developer will have some extra functions, unique features in their products aimed at making their product attractive in the marketplace. These features are outside the scope of the NordDRG testing.
Certified products will produce correct results but may differ in other aspects (e.g. user interface, computer hardware requirements and processing time). Processing time may vary depending on the interface written to the grouper and the type of processing performed. This is also outside the testing.

However, defects in the interface can cause wrong grouping results if it allows incorrect information to be fed into the grouping engine. If necessary, the grouper products are tested based on the existing hardware and operating systems available within CA or external sites.

Third party information
In order to provide authorization for developers to distribute NordDRG grouper software there are a number of terms in relation to the third party (end users):
▪ The certified version of the software should be identified to the end user using standard terms. For example, the version of the grouper software should be identified in advertising, packaging and within products relating to the grouper software as "NordDRG", version number (usually year) and name of national version as explained in the NordDRG Manual.
▪ The NordDRG owners are not liable for, and make no warranty regarding the functionality of the version of the software to any third party.
The third party is prohibited from exploiting the NordDRG system.