EUCERD Joint Action Workshop

on

Orpha codes

in Health Information Systems

Workshop Report

Introduction

Currently, only a small fraction of rare diseases have codes in international nomenclatures, making it impossible to trace patients with rare diseases in health information systems on a national and international level. Having codes for each and every rare disease would help European and national health authorities obtain a better knowledge of healthcare pathways and of their impact on specialised health care services (centres of expertise for instance) and on budget. It would also provide data for clinical research which is critically needed in this field. Improved codification for rare diseases is cited as a priority in the *Council Recommendation on an action in the field of rare diseases* (2009).

Orphanet curates a nomenclature specific to rare diseases called the Orpha nomenclature wherein each rare disease has a unique identifier called an Orpha code. The Orphanet team has led the process to incorporate all rare diseases into the 11th version of the International Classification of Diseases (ICD-11), and is in the process of adding rare diseases to SNOMED CT. However, the launch of ICD-11 has been delayed until 2017, meaning that an easily implementable solution is needed in the meanwhile to ensure that rare diseases patients are visible in the healthcare system at the national and European level. The solution proposed by Orphanet, with the support of the European Union Committee of Experts on Rare Diseases (EUCERD www.eucerd.eu) is to add Orpha codes in addition to the existing nomenclature in use in each country's health information system. Adding the Orpha code to the current coding system is a relatively simple, fast and inexpensive initiative, when compared to adopting a new version of a coding classification and given the added value of having a means to collate data on rare diseases.

In order to inform competent authorities across Europe of the utility and feasibility of implementing this approach, the EUCERD Scientific Secretariat organised, in the scope of the EUCERD Joint Action (N° 2011 22 01), a workshop composed of representatives from authorities in charge of coding in health information systems on 18 March 2014 in Paris in order to share experiences and define jointly a strategy and concrete next steps.

Introduction to the revision of ICD10 in the field of rare diseases - *Ségolène Aymé*

Ségolène Aymé, founder of Orphanet and leader of the Topic Advisory Group for Rare Diseases (RD TAG) for the revision of the International Classification of Diseases (ICD) at the World Health Organization (WHO), introduced the topic of the workshop by giving a presentation of the revision process to reach the 11th version of ICD, now expected in 2017. The classification is at the beta phase for the moment. In terms of the current status of the proposal by the RD TAG, all rare but non exceptional RD are in the iCAT revision tool (the online tool used by WHO in the revision process) with a definition, however RD are not always classified as wished by the RD TAG, as other TAGS have also imputed on the classification process. In the future, it is hoped that an agreement will be met with WHO to add the Orphacode number into the content model to allow cross-referencing to be used for the update process. The various hurdles in the process were explained including the problems with the management of the revision. The beta version of ICD11 currently out for review includes mortality and morbity packages each including a linearisation. Speciality linearisations are possible. A rare diseases linearisation has been requested and accepted. RD will be present in the rare disease linearisation (which will be an extension of the morbidity linearisation which is the main international reference for reporting and data exchange notably in hospital discharge summaries) and in the electronic version of ICD11. ICD11 and SNOMED-CT will be aligned and also aligned with Orpha codes. Adopting Orpha codes will help prepare the migration from ICD10 to ICD11. Countries who will adopt ICD-11 will also be able to generate their own national linearisation. It is hoped that automatic updates will help improve the final version once released in 2017, and will guarantee that Orphanet updates are integrated into the classification.

Introduction to Orpha codes : Status and position amongst international nomenclatures – *Ana Rath*

Ana Rath, Chief Scientific Officer at Orphanet, presented the status of the Orpha nomenclature in relation to other international nomenclatures. Firstly the edition process was explained, notably the monthly 'diseases meeting' during which decisions are made concerning the creation of new entries, the modification of existing entries (i.e. nomenclature, position in the classification), the obsolescence of entries, the revision of classifications, and decisions concerning information linked to diseases. The naming rules for entries were also explained. The Orpha nomenclature is available via www.orphadata.org. The cross-referencing of the Orpha nomenclature is updated monthly and is also available on this platform. The process to establish the Orphanet classification of rare diseases was also explained. This classification is based on published classifications, the literature and expert working groups depending on the group of diseases revised (for instance, classification of inborn errors of metabolism is revised with the help of the SSIEM). Revisions are submitted to ad-hoc experts for validation. The Orphanet classification is multidimensional and it is updated through the aforementioned sources monthly and through a defined quality control process.

Orphanet maps Orpha codes to OMIM, SNOMED CT (402,200 terms), ICD10 (12,451 terms), MeSH (242, 262 terms), MedDRA (73, 742 terms) and UMLS (>11,300,000 terms). The mapping procedures were described: these procedures take place twice a year for all and monthly for ICD10 and OMIM.

In conclusion, Orpha codes are useful as they can help identify rare diseases cases from health care sources, connect data coming from health care to data coming from research, promote international collaboration and data exchange, whilst also providing a sound, structured, inter-operable resource for codification. Orpha codes are stable and never re-used. The nomenclature and the structure are updated monthly and updates are provided in several IT formats to ease integration in different IT systems (xml, OWL, obo). In the future, it is foreseen to provide metadata to track changes between versions.

Discussion

Participants agreed that ICD11 will have to be updated frequently to take into account evolutions in the Orphanet nomenclature. WHO plans to update ICD11 on a yearly basis. Participants also agreed that better tracking of changes in the Orpha nomenclature are needed if Orpha codes are to be used by Member States in their health information systems. It was highlighted that the work to make the sources of decisions visible and changes tracked is enormous and that EU financing is needed.

It was clarified that the best experts are consulted on decisions made on the classifications, and if there is no expert that decisions are taken in-house: the source of each decision is referenced and this is the metadata which Orphanet plans to make available. The Orpha codes are stable, and are never deleted: if an entity is deleted, the number is still kept in the database but is not visible via the website. The Orpha codes are generated automatically by the database and are successive. All the literature used to update the classifications is published in OrphaNews.

Orphanet is working at publishing the changes in nomenclature and classification so that differentials between versions will be visible in a standardised manner along with the reasons for modifications and their sources. Countries adopting the Orpha codes can decide on the frequency for updates, in order to have a stable version during a given time (i.e. every year).

The Orphanet team were asked to consider mapping backwards from SNOMED CT to Orpha codes. The possibility of a bilateral agreement will be explored. Currently a partnership has been agreed with IHTSDO to incorporate all Orphanet RD into SNOMED CT and give them feedback on coding issues.

The procedures for decisions on mapping to ICD10 were distributed. It was highlighted that the 20% of RD without an ICD10 code are very rare and familial syndromes; these will be linked to ICD11 later.

In terms of updating the nomenclature, the Orphanet database is edited on a daily basis : for updates with other information systems a monthly or yearly update will be proposed.

EU Health Statistics Framework – *Fabienne Lefebvre*

Fabienne Lefebvre of DG Sanco C2 gave an overview of the EU Health Statistics Framework including the European Statistical System (ESS) and Eurostat, the compulsory EU health statistics framework, the voluntary EU health statistics framework, ICD use in Eurostat data and possible ICD use in Eurostat data in future. ICD use is foreseen in the Framework Regulation (EC) No 1338/2008 on health statistics – Annex III Causes of death, and ICD use is foreseen for Eurostat data concerning morbidity and in the Health Expenditures by Diseases and Conditions (HEDiC) project.

Discussions following this presentation highlighted the need to have a list of RD with ICD specific codes to obtain the support of Eurostat for Orpha codes. The EC highlighted that Member State support for Orpha codes will also be needed to effectively lobby for Eurostat recognition of Orpha codes.

The German approach to coding rare diseases – *Magdalena Dávila*

Magdalena Dávila from DIMDI presented the German project to implement Orpha codes alongside ICD10 codes in the German health care system. In Germany, a German Modification of ICD10 is used in all areas of the health care systems and in electronic health records. This modified classification is due to special requirements of the German system and data security guidelines. The project aims over the next year to match all RD from Orphanet to ICD-10-GM (German Modification) and link the Orpha code with the Alpha-ID (identification number of each diagnostic term in the alphabetical index of ICD-10-GM). The Alpha-ID is updated annually. The Alpha-ID file with the relevant codes from both systems will be provided to all users of ICD-10-GM in Germany. This will standardise coding of rare diseases in Germany by providing electronic files for easy implementation. The project is also to assist special centres for rare diseases in selecting the correct codes from both systems, and to provide easy access to rare diseases information to medical doctors within existing medical information systems. Feedback from this process will be relayed to Orphanet and WHO. Lessons learned from provision of two coding systems within one file and the respective acceptance by the users can contribute to similar national or international developments and to enhanced usability of code systems. This could lead to better standardisation in documentation of rare diseases. This project will take place over 3 years and started in July 2013, with the evaluation and implementation scheduled for the third year. The first phase is the matching of the Orphadata XML file to the alphabetical index of ICD-10-GM : already 806 terms are exactly the same with 384 terms exactly the same and assigned to the same ICD-10 code.

The French approach to coding rare diseases – *Rémy Choquet*

Rémy Choquet, the IT Manager of the French Rare Disease Data Bank (BNDMR, www.bndmr.fr), presented the approach toward the coding of rare diseases in French health information systems. The 2nd French Plan for Rare Diseases proposed to introduce into the national health information system Orpha codes to increase the visibility of rare diseases including the BNDMR which aims to create a national registry for all rare diseases in France. At the end of 2012, the French Ministry of Health requested that all hospital records include an Orpha code alongside the ICD code, for rare diseases, using a field dedicated to public health surveys. The BNDMR team was requested to develop a tool allowing for a user-friendly navigation into the Orphanet classification to allow the identification of the right Orpha code to assist coders. Collaboration with Orphanet was established to track changes in the Orphanet RD thesaurus and classifications and the tool for coders was developed. The tool is named Linking Open Rare Disease Data for diagnosis coding in health information systems (LORD). It helps coders find the appropriate code for a rare disease using Orphanet data by visualising the hierarchical organisation of codes. The tool is currently being tested by users (http://lord.bndmr.fr) such as medical information managers, MD in RD centres of expertise, and coding technicians. LORD is a web-based application which can be integrated within local applications. Collaboration with Orphanet should be defined to optimise the communication around this tool. A necessary evolution for this tool is the addition of a plug-in to select the appropriate code.

The Belgian approach to coding rare diseases – *Ingrid Mertens*

Ingrid Mertens from the Federal Public Service for Health in Belgium presented the projected actions concerning the coding of rare diseases in the Belgian Plan for Rare Diseases published at the start of 2014 and the Belgian e-Health Roadmap. The Belgian plan foresees that the team of the Central Registry for Rare Diseases shall explore in collaboration with the Data Management Service of the Federal Public Service for Health if Orpha codes should be implemented in Belgium and how this could be done, in collaboration with Orphanet. The eHealth Roadmap foresees the implementation of a national terminology policy with a focus on the clinical field but with a view to the reuse of the data for administrative and scientific needs. The consensus of the Europlan conference held on 28 February 2014 was that Orpha codes should be mandatory for centres of reference for rare diseases. Other health care providers will be encouraged to use SNOMED and an alert will be created if it is a rare disease. Rule based mapping between the Belgian reference set of SNOMED codes and Orpha codes is underway.

The Spanish approach to coding rare diseases – *Manuel Posada*

Manuel Posada, from the Institute of Rare Diseases Research at the Istituto de Salud Carlos III, presented the Spanish rare Diseases Registries Research Network – SpainRDR (https://spainrdr.isciii.es/en/Pages/default.aspx) which aims to create a registry for all rare

diseases in Spain. The registry will provide data for health-policy decision-making and clinical research by creating central platform providing access to this information. The data are expected from two types of sources : the population-based registries already set up by the autonomous regions for epidemiological research and social-health planning, and the disease registries already set up by clinical or research groups for a specific disease or a group of diseases. A pilot study involving population-based methods has been devised. The data will be generated from sources using ICD10. The data from patients proved to have a RD will be then coded with Orpha codes. There is no plan to introduce Orphacodes in the health information system in general but the SpainRDR project will facilitate their use by physicians and also promote future implementation at the National Health System. SNOMED-CT will be implemented in Spain in 2016 as an official classification.

The Hungarian approach to coding rare diseases – *Janos Sandor*

Janos Sandor, University of Pecs, presented the proposal for coding rare diseases in Hungary. For the moment there are concrete plans to use Orpha codes in the National Health Insurance Fund discharge records for the rare disease centre. An additional Orphacode will have to be added to the predefined ICD10 code to fulfil reimbursement requirements. This proposal is not costly and will not require much extra time for those entering codes. This initiative will improve the accuracy of coding and support quality assessment and surveillance. A number of pilot areas have been identified to test the use of Orpha codes for discharge records. The strongest arguments to convince those who are sceptical of the use and facility of this approach will be generated by showing the usefulness of existing RD specific code-based monitoring.

The situation in Italy - *Paola Facchin*

Data on rare diseases are collected at two levels in Italy: at regional and national level. Each region has a population-based registry to support social and health care of the patients and for reimbursement requirements. The Italian National Registry for Rare Diseases was established at ISS in 2001, in agreement with article 3 of the Ministerial Decree 279/2001. The National Registry collects a minimum data set from the regional rare disease registries. Some regional registries (9 regions, 25 millions of inhabitants) use routinely ICD-9 CM, ICD-10. ICD-10 codes are detailed for the entities related to the rare diseases and defined through OMIM and Orpha code codification. There is a list of around 331 exemption codes (which has not been revised since its publication in 2001) giving rights to benefits to patients (economical, treatment, care, etc) referring to about 3,200 nosological entities, continuously updated. Therefore, the regional registries do not collect data on all patients with rare diseases but on a very significant subset.

The situation in Portugal - *Anabela Coehlo*

In Portugal, rare disease cards are being implemented which will also help map rare diseases and plan resources at national level. The quality of coding is a major issue and for this reason doctors would be the best coders due to their clinical approach but this is a great burden on their time.

The situation in Greece - *Helen Michelakakis*

In Greece, Orphanet is recognised by law as the official reference site and source of information for rare diseases. In that context the Ministry of Health has opened the discussion about the adoption of Orphacodes and at present the inclusion, when appropriate, of Orpha codes and the designation "Rare Disease" in the certificates issued by the Centres Certifying Disability is being discussed. Furthermore in an upcoming congress on eHealth under the Greek presidency of the EU, a session will be devoted to rare diseases coding. In the context of Cross-Border Healthcare, the Orpha code should be encouraged to be included in the patient summaries as this would have an added-value at EU level.

General discussions concerning next steps

It was suggested that an ICD10 code is only used in studies on a rare disease if this code is specific. For all the other rare diseases, ICD10 should be used with the additional Orpha code attached.

Participants agreed that it would be a good idea to use the list of rare diseases established by Orphanet as the official list of rare diseases in each European country, rather than a national list.

In Austria, bilateral talks are underway with Germany to collaborate and learn from their approach due to the linguistic similarities.

Participants highlighted that in terms of communication, a separate website to Orphanet for the LORD application is confusing for the community even if the tool is useful for coders. A common identity and visibility is preferable, especially in the context of cross-border healthcare and related considerations for which a common platform would be preferable. The LORD application, developed for a specific question, is planned to be updated once a year, therefore less frequently than Orphanet and the Orphadata datasets. Other countries can decide on different update rates depending on their specific needs. Solutions to these issues should be further explored.

Several participants sought clarification on the status of Orphanet and its sustainability: this must be assured and permanent for some governments to commit themselves to using Orpha codes. A stable, international legal status would be preferable. Ségolène Aymé highlighted that this is a key issue to be addressed but the sustainability of Orphanet is not at stake as it is maintained by an INSERM unit, INSERM being a public body. However Orphanet also requires the financial support

from the European Commission and the Member States. The status of Orphanet should be discussed by the new EC Expert Group on Rare Diseases in the near future in relation to the topic of coding of rare diseases and the future possible European Research Infrastructure for Rare Diseases. The outcomes of the current workshop will serve as a basis for these discussions. The most satisfying solution for all parties would be for Orphanet to become a WHO Collaborating Centre. A European-wide agreement and tool for coding of rare diseases could be a legitimate topic to be dealt with within the framework of the Cross-Border Healthcare Directive, currently being implemented.

The EPSOS project (http://www.epsos.eu/) was cited which aimed to design, build and evaluate a service infrastructure to demonstrate cross-border interoperability between electronic health record systems in Europe. The use of Orphacodes for RD could be promoted in the context of this project.

In conclusion the following countries have taken the decision to implement Orpha codes in their health information systems in their national plans for RD: France, Germany, Hungary, Belgium. Spain has decided to use Orphacodes to an extent in their national rare disease registry. Other countries are still exploring the field, such as Malta, and also the UK who have opted for SNOMED, but could consider Orpha code as an additional code.

Conclusions

The discussions of the workshop were fruitful and a number of action points were defined:

- The EC will bring the topic of coding of rare diseases to the EC Expert Group on Rare Diseases for discussion with the aim of adopting a recommendation which is acceptable for all Member States on this topic. This topic will be added to the agenda for their next meeting in June.
- The workshop participants will be solicited for their input on the first draft of these recommendations for further elaboration and adoption by the Expert Group on Rare Diseases.
- Advice will be formulated for those countries who have plans to use Orpha codes for coding rare diseases in their health information systems but who have not yet implemented this process.
- The need for an official legal status for Orphanet will be explored, notably with the EC and WHO, including the possibility of becoming a WHO collaborating centre.
- A tool for coding rare diseases easily is needed by the Member States: this need should be further defined and pursued to serve the needs of the community. Mutualisation of ongoing initiatives should be promoted in order to avoid the duplication of efforts.
- A good working relationship should be pursued with SNOMED CT.
- The report on the decisions concerning the addition and coding of diseases in Orphanet should be made available to improve transparency.
- Tracking of changes and versioning in the classifications and coding of diseases in Orphanet should be made available to improve transparency.
- Further workshops on this topic should be envisaged so as to ensure that Member States receive the appropriate support and that there is a common approach from country to country.
- Exchanges of experiences should be encouraged and summaries of each country's approach should be shared.

Participants

- Francis Agius – Ministry of Health, Malta
- Verónica Alonso – Institute Carlos III, Spain
- Ségolène Aymé – Chair of the Topic Advisory Group on Rare Diseases at WHO, Director of International Affairs at Orphanet, France
- Remy Choquet – French National Rare Disease Database, France
- Anabela Coehlo – Directorate-General of Health, Portugal
- Magdalena Davila – DIMDI, Germany
- Patrice Dosquet – Ministry of Health, France
- Loredana D'Amato – Orphanet Switzerland
- Kathy Farndon - NHS England, United Kingdom
- Marc Hanauer – Orphanet, France
- Paola Facchin – Veneto Region Rare Disease Registry, Italy
- Anna Kole - Eurordis
- Monique Kosmala – Ministry of Health, Luxembourg
- Fabienne Lefebvre – DG Sanco, European Commission
- Jana Lepiksone - Centre for Disease Prevention and Control, Latvia
- Rutger Nugteren – Rijksinstituut voor Volksgezondheid en Milieu, Netherlands
- Ingrid Mertens – Ministry of Health, Belgium
- Helen Michelakakis – Orphanet, Greece
- Flavio Minelli - Eurordis
- Hubertus van Paaschen - National Board of Health and Welfare, Sweden
- Genovaite Paulauskiene - Ministry of Health, Lithuania
- Urbina Paz - Orphanet, Belgium
- Manuel Posada – Institute Carlos III, Spain
- Marjaana Rasanen - Hospital District Helsinki and Uusimaa, Finland
- Ana Rath – Orphanet, France
- Charlotte Rodwell – EUCERD Joint Action, France
- Arturo Romero-Gitiérrez – Ministry of Health and Social Affairs, Spain
- Cristina Rusu – Orphanet, Romania
- Janos Sandor – University of Pécs, Hungary
- Elfriede Swinnen - Orphanet, Belgium
- Danièle Villaneau – HUG, Switzerland
- Till Voigtlaender – Orphanet Austria
- Jaroslaw Waligora – DG Sanco, European Commission
- Jaakko Yrjö-Koskinen - Ministry of Social Affairs and Health, Finland
- Miroslav Zvolský – Institute of Health Information and Statistics, Czech Republic