National terminology and classification resource including Snomed CT
Project plan
July 2007
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Cooperation in establishing a future international concept system for the health and welfare services was one of the basic preconditions when, in the spring of 2007, the Swedish Government decided to actively work for the founding of the International Terminology Standards Development Organisation (IHTSDO). Sweden will participate in this cooperation in order, on the one hand, to utilise international knowledge and experience and, on the other, to actively contribute to international developments.

The National Board of Health and Welfare has been instructed by the Government to elaborate a national information structure and to draw up, administer and supply a national terminology and classification resource based on the concept system Systematized Nomenclature of Medicine – Clinical Terms (Snomed CT).

The commission is formulated as follows:

The National Board of Health and Welfare shall take overall national and strategic responsibility for ensuring that individual patient- and user-specific information shall become less ambiguous, easier to follow up and more accessible in accordance with the objectives and principles laid down in the Government’s written communication entitled National Strategy for eHealth.

The National Board of Health and Welfare shall supply Snomed CT free of charge to interested parties within the Swedish health and welfare services. The Board shall also, in cooperation with the Swedish Association of Local Authorities and Regions, encourage and support the introduction and use of the national terminology and classification resource in the health and welfare services.

Ultimately, Snomed CT will be a tool for principals in their endeavours to supply good health and welfare services, that is to say measures and efforts for private individuals pertaining to social services, support and service for disabled people and health care under the applicable laws.

The commission is divided into three main areas:

- The National Board of Health and Welfare shall support and encourage the introduction and use of Snomed CT.
- The national terminology and classification resource shall be made known to principals and other target groups.
- Snomed CT shall be usable in Sweden through translation, harmonisation and administration.

However, the project is not responsible for adapting national systems and registers to Snomed CT.

One of the more comprehensive questions at issue for the project is whether or not the Board should draw up rules and guidelines for use of Snomed CT. At present Snomed CT does not cover the social services’ field
of activities. An important task is therefore to ensure that Snomed CT is developed in this area.

It is strategically essential to build up knowledge, together with the project’s target groups, about the importance of this major national investment for activities in health and welfare services.

Administration and financing of Snomed CT is a long-term responsibility requiring a process-oriented working method, skills development and continuity. Experience during the project period will also provide basic material for long-term planning.

The project is financed for the period 2007-2011 from funds from the Ministry of Health and Social Affairs. A project report will be presented on 31 March 2011.
Introduction

The Commission

In May 2007, the Government took the following decision: [1]

The National Board of Health and Welfare shall take overall national and strategic responsibility for ensuring that individual patient- and user-specific information shall become less ambiguous, easier to follow up and more accessible in accordance with the objectives and principles laid down in the Government’s written communication entitled National Strategy for eHealth. The task comprises on the one hand the elaboration of a national information structure and, on the other, the drawing up, supply and administration of a national terminology and classification resource.

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The commission also means that, in collaboration with the Swedish Association of Local Authorities and Regions, the National Board of Health and Welfare shall encourage and support the introduction and use of the national terminology and classification resource in the health and welfare services.

Both these assignments – a national information structure in accordance with the National Strategy for eHealth [2] and a terminology and classification resource – are conditional on each other and fully developed shall contribute to the following:

- increased security for patients, users and clients in that health and welfare information is documented and communicated over time and across organisational boundaries with content and context intact
- unambiguous follow-up of activities
- rational and effective information management in the health and welfare services.

The national terminology and classification resource

The national terminology and classification resource includes development, coordination and administration of the following:

- recommendations and rules for the use of concepts and terms and also of the term bank
- Swedish versions of WHO classifications as well as Swedish and Nordic classifications
- The international concept system Systematized Nomenclature of Medicine – Clinical Terms (Snomed CT)
- The National Board of Health and Welfare register of OID numbers for classifications and code systems (OID – object identifier)
- Participation in European and international cooperation to develop Snomed CT as well as common terminologies and classifications, in which global and European standardisation work is included as an element.
Snomed CT
In accordance with the Government’s instructions, the National Board of Health and Welfare has overall responsibility for the translation and administration of Snomed CT and for its supply free of charge to interested parties in the Swedish health and welfare services. Furthermore, work on Snomed CT is to be coordinated with the authorities’ ongoing terminology and classification work. In addition, the National Board of Health and Welfare is to assist the Ministry of Health and Social Affairs in international cooperation within the International Health Terminology Standards Development Organisation (IHTSDO) to develop, complete and enhance the concept system jointly with other countries.

Snomed CT may be compared with an electronic, structured and aligned edition of Svenska Akademiens ordlista (Swedish Academy Glossary) (SAOL) – with the addition that it also indicates how these concepts are related to one another. Snomed CT is an essential contribution to the national terminology and classification resource which provides an opportunity for electronic communication of data with content intact.

Snomed CT contains codes for about 360 000 concepts within the health and welfare services, e.g. for detailed description of diseases and body functions, laboratory investigations, procedures and interventions. By giving a Snomed CT code for a specific key word in the health care records, all electronic health care record systems, both national and international, can thereby understand the concepts referred to. From a long-term perspective, there are great expectations regarding Snomed CT’s importance for the health and welfare services’ computerised documentation systems.

It is important to note that Snomed CT is not a ready IT solution that can be used straight away in the health and welfare services. It is not a classification system and it does not include definitions, rules or directions for the use of concepts in practical everyday contexts. Nor does the terminological content at present fulfil the needs for the broader use that is the objective in the long term, that is to say, that the system can be used both in health and welfare services as well as in other areas of social services. To create good preconditions for achieving this, extensive development work is needed that must involve several different interested parties:

- The concept system must be made available, surveyable and easy to use if it is to be useful to end users in the health and welfare services.
- Concepts must be packaged in purposeful and usable structures, for example in the form of standard treatment plans, input forms or search word templates.
- Rules and user guidelines must be produced.
- Educational and information material as well as competence must be accessible.

The build-up of this national resource is an urgent project. There is a great demand for it from stakeholders in health care, welfare, research, development and management. It is also a long-term project in which no one possesses ready solutions today. Ideas about how the resource should be designed and used must be discussed in an open and coordinated dialogue, in which both know-how and commitment in the health and welfare services...
must be utilised – among professionals and at management level, in professional and specialist organisations, in research and education and at the international level.

Contents of the project plan
This document deals with that part of the commission that concerns the national terminology and classification resource – particularly efforts to make Snomed CT usable in Sweden, known to principals and other target groups and introduced and used in the health and welfare services.
Overall objectives and aim

It is essential that documentation, communication and follow-up in the health and welfare services are expedient and secure. Common linguistic usage that is sufficiently detailed and structured to function in the long term and in a computerised environment is therefore needed.

The idea underlying the national terminology and classification resource including Snomed CT is linguistic uniformity. Work on the national information structure, for which the National Board of Health and Welfare is responsible, will in addition contribute to a uniform information structure. These two projects are therefore conditional on each other.

Objectives and aim

Ultimately, the national terminology and classification resource is to be a tool for principals in their efforts to supply good health and welfare services. Health and welfare services refers to measures and efforts for private individuals relating to social services, support and service for disabled people and health care under the applicable laws.¹

The overall objective for the Board’s work on the national terminology and classification resource is patient, user and client security. This can be achieved if health and welfare information can be documented and communicated over time and across organisational boundaries with its content and meaning intact.

The National Board of Health and Welfare is to build up this resource together with the Swedish Association of Local Authorities and Regions and encourage coordination and cooperation with and among interested parties in order to prepare for the national terminology and classification resource.

In addition, the National Board of Health and Welfare is to lead the work of translating, harmonising and administering Snomed CT.

The aim of work on Snomed CT is that it can be used in all information systems in the health and welfare services. To achieve this, collaboration between local, regional and national parties are required. However, the project will be completed before this resource is fully developed and introduced into Swedish health and welfare services. It is therefore essential that questions concerning its introduction are in continuation emphasised when the National Strategy for eHealth is followed up.

¹ Health and welfare services are, for example, provided under the Social Services Act (SoL, 2001:453), the Act concerning support and service for persons with certain functional impairments (LSS, 1993:387), the Health and Medical Services Act (HSL, 1982:763), the Act on the care of substance abusers in certain cases (LVM, 1988:870) and the Care of Young Persons (Special Provisions) Act (LVU, 1990:52).
Delimitation
Within the project, a number of delimitations have been made:

- The project shall assist in ensuring that the target groups are instructed in how the national terminology and classification resource is built up and can be used. However, it is not responsible for implementation and training outside the framework of the project.

- The project shall make efforts to ensure that the health care and information systems providers see the opportunities Snomed CT affords. However, it is not responsible for the adaptation of local and regional systems, for the adaptation of national systems and registers or for the introduction of Snomed CT.

- The project shall translate and harmonise the contents of Snomed CT for Swedish conditions and usage on the basis of established sources. However, it is not responsible for producing educational material that is not already documented and available.

Examples of matters to be taken into consideration in the project
Several matters have had to be taken into consideration in the project:

- The Government has requested the National Board of Health and Welfare to standardise the use of concepts and terms. There may therefore be reason for the Board to draw up guidelines for using Snomed CT. In this way, the system can be of practical use in health and welfare documentation. The project is to propose in what way work on directions should interplay with Snomed CT.

- The project relating to Snomed CT and the creation of a uniform national concept system for the health and welfare services is an extensive undertaking, extending over a long period of time. The project is to clarify the competence and resources required for the long-term administration of the national terminology and classification resource including Snomed CT.

- Compared with other earlier terminologies and classifications, Snomed CT has greater potential to support the further development of, for example, follow-up, aggregation and decision support; there are international examples of such use. As far as possible, Sweden must utilise investments already made and the development work ongoing at the international level.

- Snomed CT is an international development project and there are known deficiencies in parts of its contents. For Swedish use, the project should identify those concepts and terms, classifications and code systems that must be defined in order that health and welfare services function securely.
• The project must guarantee that Snomed CT can be used for secondary purposes, for example to assemble data for different health data and quality registers and also in order to produce statistics. In addition, a survey should be carried out concerning how the richness of detail can further develop secondary uses.

• Cooperation in Snomed CT and associated areas within the international organisation IHTSDO is likely to be important for the Swedish development project. It is therefore essential that the national project covers different initiatives in the areas that support cooperation in the EU and other international contexts.

Risks identified in the project
The national terminology and classification resource including Snomed CT is an important project but at the same time it is a risk project. Some of the risks identified are presented below.

• It is reasonable to assume that Snomed CT can gradually begin to be used in different information systems and experimental activities as soon a sufficient progress has been made in the translation work. The present commission will be terminated in March 2011 but there is a risk that practical implementation will not be fully developed by then.

• It is essential for future administration of Snomed CT and other terminology and classification resources that there is a good supply of competent staff both in the short and the long term. However, in the short term there is a risk that there will not be time to recruit or train staff with the right qualifications to carry out the project at the speed required.

• The quality of the translation, harmonisation and multiprofessional information management will determine the degree of confidence of the professions and principals in Snomed CT.

• On the cost side, it is difficult to assess the scope of the commission in the short and long term, chiefly regarding administration and international cooperation.

• Resources and forms for collaboration within and between the three commissions of the National Board of Health and Welfare: National information structure, National terminology and classification resource including Snomed CT and Open comparisons within care of the elderly and the Procurement and Financing Office’s project Applied information structure must be identified and in place in all projects if the commission is to contribute to rational and effective information management in the health and welfare services.

• An essential precondition for successful implementation is that all organisations and interested parties identified as being of central importance take responsibility for proactively pursuing activities and efforts that support the overall objectives of the project and the IT strategy as a whole.
Project organisation

Overall coordination of the commission
The Director-General of the National Board of Health and Welfare is the formal principal. Responsibility for the project rests with the Centre for Epidemiology (EpC) at the National Board of Health and Welfare. The commission has three main elements – terminology, classifications and Snomed CT. Coordination will lie within the framework for the Snomed CT project until March 2011. Questions concerning the daily administration of terminology and classification matters will be dealt with by the Terminology and Classification Council.  

The various parts of the project are described in the illustration below.

A joint steering committee will be established for all the National Board of Health and Welfare informatics projects. At present, projects include the *National information structure* (NI) and the *National terminology and classification resource including Snomed CT*. Participants in the projects will presumably be National Board of Health and Welfare specialists.

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2 Responsibility for national coordination of terminology and classification matters rests with this group within the National Board of Health and Welfare, which can furthermore take decisions on recommendations.
departments and the Swedish Association of Local Authorities and Regions. The joint steering committee will see to it that the projects coordinate plans and jointly utilise knowledge, resources and results wherever possible. The specialist departments will also propose other projects and tasks connected with the National Strategy for eHealth.

The project’s internal steering committee will be responsible for direction of the project and for any deviations from the plan and budget. The steering committee will be led by EpC’s head of department. The steering committee will also include the head of division and a representative from the Office of the Director-General. The project manager is responsible for the reporting.

**Project management**

The project management is made up of the following persons:

- **Lotti Barlow** from EpC will lead the project. The project manager is responsible for overall leadership, follow-up and coordination of the project and for Sweden’s participation in the international cooperation and will furthermore present matters to the steering committee.
- **Ulla Gerdin** from EpC will be the deputy project manager with responsibility for sub-projects concerning translation and for coordination of national work on concepts and terms.
- **Lars Berg** from EpC will be responsible for the sub-project concerning mapping and harmonisation to and from Snomed CT, for cooperation with Linköping University and for coordination with the Board’s work on classifications and code systems.
- **Lars Midbøe** from the Swedish Association of Municipalities and Regions will be responsible for collaboration and coordination with the Swedish Association of Local Authorities and Regions.
- **Kristina Bränd Persson**, Head of division at EpC will be responsible for the project’s finances, procurement and personnel and administrative matters.
- **Maria Bratt**, communications officer at EpC will be responsible for communication strategies and implementation of communication activities.
Organisation and implementation of the project

Common linguistic usage for documentation of health and welfare will enable structured data acquisition and reuse of information for direct work in health and welfare as well as analysis, assessment and follow-up. However, a precondition for this is that there is agreement regarding objectives, measures and steps. The commission to produce a national terminology and classification resource including Snomed CT is to be reported in March 2011; the basic preconditions to be able to use Snomed CT in Swedish information systems should then be in place. Furthermore, the introduction of Snomed CT will probably have begun although it will take several more years before the system is fully introduced.

The project is to focus on supplying Snomed CT in Swedish with the contents that Swedish health and welfare services require, and on collaboration with the Swedish Association of Local Authorities and Regions and target groups in order to pave the way for training and pilot activities.

The project is addressed to both health care and social services, since both these activities have the common goal of improving their information management and documentation. The idea is to encourage and support the development and introduction of the national terminology and classification resource independently of the activities’ different traditions and preconditions.

In order to be feasible, the commission is divided into realistic sub-goals with concrete result objectives on which the interested parties are in agreement. However, each part requires its own methods. These are described in connection with the respective sub-project. The common preconditions that have been identified are described below.

Strategic communication

*Communication plan:* Completed in October 2007
*Communications officer:* Maria Bratt

The long-term objective of Snomed CT and the national terminology and classification resource is to give the patient and user better, safer and more effective health and welfare services. Strategic communication contributes to this by:

- create an understanding that this is an important part of the National Strategy for eHealth
- support and encourage collaboration with vital actors and interested parties
create understanding, support for, and acceptance of the introduction of Snomed CT in the health and welfare services.

The project must be made known to the principals and target groups. A clear strategy for repeatedly communicating the project is therefore essential. It should be stressed that this is part of a larger investment that will contribute to enhanced health and welfare services.

It is strategically necessary to explain how important the larger investment, including Snomed CT, will be for the quality of health and welfare services and hence also for the care of patients, users and clients – even though it will be many years before this effect is noticeable.

The fact that the National Board of Health and Welfare and its cooperation partners are communicating a common message about the benefits of a national terminology and classification resource is a success factor. There must also be cooperation in connection with major information efforts thereby showing unity in the message that this is an important path to take, together. This means *inter alia* that central information material should be produced and used in collaboration.

A priority issue in communication planning for the next few years is that universities and colleges are informed of the importance of courses in the national terminology and classification resource and also Snomed CT. Continuous contact with and information to principals is of utmost importance so that Snomed CT is accepted and introduced as part of health and welfare services’ information management.

Interested parties and different professional groups should have access to good information, for example through a website on the project, participation in conferences, etc.

Internal communication is also of central importance – within the National Board of Health and Welfare as a whole and with kindred projects both within the agency and within the Swedish Association of Local Authorities and Regions.

Information in English will be published regularly on the IHTSDO organisation’s website concerning the implementation of the project and Sweden’s use of Snomed CT. In this way both cooperating countries and other interested countries will know that Sweden is introducing the concept system and will also have an opportunity to benefit from this information.

Central documents will be available in English (and some in Swedish too) in order to contribute to exchanges of information.

Secondarily, patient and service user organisations should be informed about this work, with chief emphasis on the fact that it is part of a larger investment for enhanced health and welfare services. In contacts with these organisations the emphasis should be on *why*, that is to say the benefits – not just on *how*.

**Target groups**

The following target groups have been identified:

**Primary national target groups (not in order of precedence)**

- National Board of Health and Welfare, internally
- Swedish Association of Local Authorities and Regions
• Associations of local authorities
• Procurement and Financing Office
• Ministry of Health and Social Affairs, the Government Offices and its committees
• External project participants
• Municipalities and county councils
• Universities and university colleges
• Other relevant authorities
• Private suppliers of health and welfare services
• Carelink
• Swedish Standards Institute (SIS)
• Those responsible for terminology work in municipalities and county councils and at private health care providers
• Suppliers of information systems for health and welfare services
• Professional organisations and specialist associations

Secondary national target groups
• Patient and service user organisations

International target groups (not in order of precedence)
• IHTSDO’s present and prospective member states
• WHO’s classification activities (CAT) and global network (WHO-FIC)
• Nordic Centre for Classifications in Health Care

Adaptation of Snomed CT to Swedish conditions

A broad description is given below of how the transfer of Snomed CT to Swedish conditions is to be implemented, the sub-projects that will be carried out and their respective roles in the project. Detailed plans for the sub-projects will be prepared and ready in the autumn of 2007, or by 31 March 2008 at the latest.

Translation

Project plan: Completed in October 2007
Sub-project manager: Ulla Gerdin
The National Board of Health and Welfare has chosen to translate the whole of Snomed CT in one context. Experience from Denmark shows that this working method benefits the quality of ongoing translation work and the concluded result. Some 300,000 concepts will be translated, which is estimated to take over four years.

It is the concept as described in Snomed CT that is to be translated into a Swedish equivalent. The concept will be given the preferred term for health care professionals engaged in welfare services. It may be the Latin designation, the Swedish designation or a term translated into Swedish.

The National Board of Health and Welfare has overall responsibility for ensuring that the translation is correct. A special editorial office comprising persons with knowledge of medical terms, terminologists and translators will be responsible for the Board’s quality control of the translation.

The actual translation work will be procured but the Board will direct work on linguistic guidelines for the translation and also supply a web-based tool to support the five steps in the translation chain:

- choosing preferred blocks of concepts
- translation
- quality control of translation
- handling the surplus list
- publication.

Each stage and each individual participating in the translation work will be identified in the web support.

The objective is for an average 10,000 concepts to be translated per month. As translation work progresses, the contents of the concept system will be verified within the framework of different pilot projects. This means that there will be a check or confirmation that a specific concept area, for example orthopaedics or geriatrics, is represented in Snomed CT.

Training courses in Snomed CT and the IT support that will be used in connection with translation is of central importance for the quality of translation to be secured and controlled. Initially, some 50 people will undergo training in the autumn of 2007.

Mapping and harmonisation

*Project plan:* Completed in October 2007
*Sub-project manager:* Lars Berg

The comprehensive concept of *mapping and harmonisation* is used in the sense that concepts and terms in Snomed CT are to be checked against the concepts, terms, classifications and other code systems in use today in the Swedish health and welfare services (mapping) and that proposals for solving inconsistencies between the systems (harmonisation) are to be presented.
Snomed CT is based on that which is common to users all over the world within health care and welfare services, based on general knowledge of the human body, its functions and its structure. However, there are specific Swedish phenomena and Snomed CT must include these. A few examples:

- the organisation of health and welfare services varies between countries
- there may be general terms that have a special meaning in a Swedish medical-legal context and which differ from the meaning given in Snomed CT.

Mapping means that the contents of Snomed CT are, for example, linked to the Swedish edition of ICD-10 [3] – *Classification of diseases and health problems 1997* (KSH97).

There are many concepts, terms, classifications and other code systems used in health care and welfare services today, *inter alia*, in health care records, health data registers, registers of cause of death, quality registers, primary health care databases, for certificates of illness and in the health care benefit systems. Mapping is therefore both vital and necessary if it is to be possible to use Snomed CT with its great richness of detail in a clinical context and for information to be subsequently transferred to less detailed but well established international and Nordic classifications which are the basis of all health care statistics. Otherwise, national statistical analyses over time and comparisons with countries that do not use Snomed CT will be impossible.

At best, concepts can be altered or added to and included in the international Snomed CT core but if this is not practically possible the concepts can be introduced as a Swedish addition (known as an *extension*). Otherwise, concepts, terms, classifications and other code systems already used in Sweden may need to be altered or new concepts added. It is this latter part that is called *harmonisation*, that is to say an adaptation to Swedish conditions.

The development of Snomed CT has taken place in the United States and the United Kingdom where it was chosen in the first place to map to classifications used in those countries. The United States has therefore preferred mapping from ICD-9-CM, the clinical modification of WHO’s ICD-9, which also comprises procedures.

The United Kingdom previously had its own code system (*Read* codes, which were subsequently developed into *Clinical Terms*). These systems were chiefly constructed on the basis of ICD-9 and different British procedures.

The Snomed CT organisation has mainly worked on mappings that result in better and extended concepts in Snomed CT. For this reason, it has not developed its own system of rules or tools for mapping. In general, there are no agreed methods for mapping, which is a need that has been discussed in conjunction with the project.

The National Board of Health and Welfare’s previous cooperation with Linköping University within the framework of the *Semantic Mining* project
is now being further developed with a view to mapping support and mapping tools.

The United Kingdom has made a mapping to ICD-10. However, it has been judged to be deficient in quality, and it cannot be used outside the borders of the UK since there is no agreement with WHO.

Swedish work on mapping and harmonisation must focus on securing the function in statistical and benefit systems. Mappings that relate to the international classifications are very few but they should be carried out in international cooperation.

In Denmark, mapping is in progress both to ICD-10 and to the common Nordic classification of surgical procedures (NCSP). Sweden should join Denmark in these efforts. However, the chapters that are not being used in Denmark, for example chapter XX (external causes of injuries) must also be included.

Preferred mappings

Pilot mapping has been carried out of parts of International Classification of Functioning, Disability and Health (ICF) [4]. This has taken place within the framework of the EU project, Semantic Mining, in which the National Board of Health and Welfare, Stakes (the Finnish export body for social services and health care) and the Nordic Centre for Classifications in Health Care cooperated. Priority should be given to develop mapping this classification, since ICF is essential for the terminology in health care records and welfare activities.

Another important aspect is the mapping and harmonisation of recommended concepts and terms in the National Board of Health and Welfare term bank.

The non-surgical procedures added to the Klassifikation av vårdåtgärder (Classification of treatment procedures) (KVÅ) [5] are specifically Swedish and therefore urgently need to be related to Snomed CT. This applies not least to about 1 500 intensive care procedures which will be used in the quality register for anaesthesia and intensive care as well as about 400 procedures to be used in nursing, physiotherapy and occupational therapy contexts and which are to be further developed from the KVÅ test module.

Pharmaceuticals are not represented as ATC codes3 in Snomed CT and a harmonisation is required since the ATC codes are used in the national patient register and in other health data registers.

The code systems from laboratory medicine included in Snomed CT differ in the same way from the C-PNU-code system,4 which is the code system used in several European countries. Work in progress at the National Board of Health in Denmark and at Linköping University is of urgent interest for cooperation.

3 ATC – Anatomic Therapeutic Chemical classification system
4 NPU – Nomenclature of properties and units: a general tool for systematically describing a property measured or observed in connection with a laboratory examination.
In addition to the above, there are projects relating to radiological procedures and child and school health care projects that should be proceeding as special pilot projects in cooperation with the Swedish Association of Local Authorities and Regions (SKL). There should be close cooperation with the National information structure and Applied information structure projects.

The illustration below shows the relationships that exist between mapping and harmonisation, pilot projects and various areas of application.

A common language – for multiprofessional information management

*Project plan:* Completed in December 2007
*Sub-project manager:* Ann-Helene Almborg

Today, personnel in health care and social services meet – physically or by telephone – in order to jointly plan the best possible care, support and service for their patients, users and clients. Electronic documentation does not have scope for body language and supplementary explanations.

If communication is to function as efficiently as possible, it is essential that concepts and terms are used uniformly and unambiguously across professional and organisational boundaries, for example between primary care, out-patient and in-patient care at hospitals, municipal health care, social services and private care suppliers. This is particularly important in care of the elderly, an area comprising both social services and health care.
The Info-VU project\[6, 7\] identified the possibility of using the structure and contents of the International Classification of Functioning, Disability and Health (ICF) \[4\] as a basis for work on cross-professional linguistic usage in documentation. The National Board of Health and Welfare followed up this work with a study of Swedish experiences of using ICF as a basis for health and welfare documentation \[8\]. Two county councils (Värmland and Västmanland) have already decided to introduce multiprofessional information management based on ICF in their documentation.

Both the sub-project on Multiprofessional information management and the Open comparisons in care of the elderly project have identified the need to work for a common language among the professions. Snomed CT and its introduction into health and welfare services presents a good opportunity to analyse and harmonise the professionals' special language.

This sub-project will be carried out \textit{inter alia} in collaboration with the Division for Elderly Matters at the National Board of Health and Welfare, the child health data project of the Swedish Association of Local Authorities and Regions, and the Standardised health care plans project at Lund University Hospital, as part of Pilots and model activities as well as Collaboration and coordination of practical applications.

An important part of the implementation of this sub-project is verification of the results in multiprofessional groups in the form of pilot activities.

Administration and maintenance

\textit{Project plan:} Completed in December 2007  
\textit{Responsible for sub-project:} Kristina Bränd Persson

At present the National Board of Health and Welfare has been commissioned by the Swedish Government to supply the national classifications used in health care, to standardise concepts and terms in health and welfare services and also to coordinate at the national level terminology work in this area. The extended commission relating to Snomed CT means that the Board is also responsible for administration of the Swedish edition of Snomed CT and for coordination of national efforts as part of Sweden’s undertakings within the framework of membership of the International Health Terminology Standards Development Organisation (IHTSDO), which is described in greater detail in the section \textit{International cooperation}.

The objective is to supply Snomed CT in a Swedish and an international edition to Swedish users.

Administration and maintenance of Snomed CT is a long-term responsibility, requiring a process-oriented working method \[9\], development of skills and continuity. It may be assumed that, in the short

\[5\] Info-VU: the National Board of Health and Welfare has been commissioned by the Government to supply information and follow-up of activities in the health and welfare services.
term, administration can and should be handled within the framework of the project management organisation but that it will gradually proceed to regular management that may possibly also comprise the other terminology and classification resources that are today administered by the National Board of Health and Welfare.

What form the future administrative organisation should take depends on several factors, in which experience during the project period should provide basic material for the long-term planning. Financing also needs to be identified and secured.

The costs involved for administration of Snomed CT, and possibly other terminology and classification resources, depend *inter alia* on staffing, choice of technology, level of ambition for skills supply, revision and development work and also ultimately on users’ demand and need for support. How much service that will be required depends on how Snomed CT is used in the health and welfare services; in the future at least technical reliability will presumably be required round the clock.

Responsibility for administration includes following the development and use of Snomed CT in Sweden and establishing support processes for maintenance and development. One important task is to ensure that the technical preconditions for maintenance and distribution follow other developments in the IT sector and meet the demands made in the international cooperation with IHTSDO and other players.

The administration of Snomed CT within IHTSDO is at present under development and will probably not be completed for another 2-3 years. The functions and processes that are established should be reflected in the Swedish organisation, for example regarding participation in specialist committees and working groups. Regarding technical preconditions also, Sweden’s choices of technology should be compatible with IHTSDO so that Sweden will be able to contribute, transfer experience, results and knowledge to the international cooperation.

*Coordinated administration of terminology and classification resources*

The preconditions for the sub-project outlined here apply in the first instance to Snomed CT. However, they also include knowledge and experience of other existing processes pertaining to classifications and coordination of terminology. The fundamental processes are similar but the demands for direction and control are accentuated through work on Snomed CT.

In the foreseeable future, the National Board of Health and Welfare will also supply existing national classifications; administration and development of these classifications and terminologies are currently carried out in separate and independent processes. In the long term, administration and development processes should be coordinated with Snomed CT, so as to enable as far as possible joint use of resources, technology and competence. In connection with the introduction of new systems and applications for administration of Snomed CT, consideration should be given to coordinating administration – which will probably improve the efficiency of
internal work, raise the quality of the products and increase the degree of service in relation to users.

**Competence centres for user support and maintenance of the concept system**

The design of the national administration must include a user perspective regarding maintenance. As the different areas of use for Snomed CT are implemented, new needs and demand will arise among users. An infrastructure therefore needs to be planned for user support and maintenance of the national concept system, which must be rooted in practical use.

One model may be to assemble different competences in *regional and local competence centres* for user support. In conjunction with national specialist associations and networks in different subject fields, these centres can channel needs and wishes to the national level. They can also support the central administration by supplying a network of competence close to practical care activities that contributes basic material for updating, verifying and developing the content.

The responsibility for establishing these competence centres and networks should rest with users and interested parties.

A general problem in connection with carrying out the project and also future introduction of activities is that there is a lack of competence in the area. Suggestions of how this lack of competence can be remedied should be drawn up in the project in collaboration with the interested parties. A first step may be to make an inventory on the one hand of existing competence and, on the other, the need for training regarding, for example, informatics, terminology and classification methods and also in Snomed CT.

**Cohesive web solution for process-controlled translation**

In order, in the first instance, to carry out translation of Snomed CT in the time allotted, the National Board of Health and Welfare is considering using the technical solution that was partly developed and is now used by the National Board of Health in Denmark for the Danish translation of Snomed CT. The system comprises modules for translation and also editing and quality control.

This web-based solution which supports translation, editing and proposal and review processes will be evaluated during the first year of the project. We will hopefully in this way obtain basic material for assessing whether the system covers the Board’s needs in the short and long term, or whether alternatives must be procured or developed.

The organisational placement of administration and also choice of technology in relation to maintenance costs must be evaluated during the project period.

**National product management centre for Snomed CT**

IHTSDO possesses the rights to Snomed CT and related products and the member countries are responsible for organising IHTSDO so that operation
and administration of the international edition of Snomed CT is carried out effectively.

IHTSDO has signed an agreement with the College of American Pathologists (CAP) on support services relating to the routine operation and maintenance of Snomed CT, in the first instance during the period 2007-2009. Under the rules, member countries in their turn shall set up a Product Management Centre (PMC) to guarantee central control and management of operation, licensing and use of IHTSDO’s products in each respective country.

These product management centres will also function as the national interface with IHTSDO, other countries’ product management centres and with Swedish institutions, organisations, suppliers and interested parties that use or wish to use Snomed CT.

The product management centres will in the long term be fully responsible for distribution of and support for IHTSDO’s products in the respective country in accordance with the guidelines laid down by IHTSDO. The idea is that Swedish users should be able to turn to the Swedish product management centre for support. However, at present the National Board of Health and Welfare lacks the competence needed to be able to offer user support for Snomed CT. Such competence must therefore be secured during the period of translation.

As a suggestion, a Swedish product management centre for Snomed CT should be set up as part of the Snomed CT system administration at the National Board of Health and Welfare. The project management is responsible until further notice for ensuring that necessary resources and competence are available or created for the central functions at such a centre. The task also includes issuing user licences for Sweden. The licences will be provided free of charge. All Swedish users must apply for a licence to be able to use Snomed CT and the application shall be made through the Swedish product management centre at the National Board of Health and Welfare.

IHTSDO owns the rights to Snomed CT and issues licenses for the international edition, including related documents and software. The national editions of Snomed CT will be developed as separate products but with a common part consisting of the international edition’s core. During the first years, Swedish users will only have access to the international, English language edition of Snomed CT.

IHTSDO has drawn up a system of rules describing the components of Snomed CT and the principle licensing procedure relating to them (see link to the websites of the National Board of Health and Welfare and IHTSDO respectively).
National cooperation

National cooperation is one of the mainstays for the national terminology and classification resource to reach its goals. This project has many target groups, and each group has a role in the cooperation.

In the project’s initial phase, a number of areas and activities for cooperation have been identified, which are briefly described below. They will be defined in greater detail in March 2008.

Need for, and use of, a national terminology and classification resource including Snomed CT

Collaboration with many partners over a long period of time is needed if the national terminology and classification resource including Snomed CT is to reach its goals and contribute to good health and welfare services.

The expectations of future users in municipalities, county councils and regions and other target groups need to be compiled and analysed. An inventory must be drawn up of needs and demands, to provide the project with basic material for setting priorities in its continued work.

In accordance with its commission, the National Board of Health and Welfare shall supply a Swedish version of Snomed CT free of charge. However, this will not be sufficient to make the resource usable, so the need for supplementary services must be clarified.

There are a number of queries surrounding administration and use of the national terminology and classification resource including Snomed CT in both the short and the long term.

The National Board of Health and Welfare and the Swedish Association of Local Authorities and Regions are jointly planning special activities to investigate these issues.

Snomed CT – a "ready model" for cooperation

Snomed CT is a concept system based on a description of concepts through their relationships to other concepts. There is already an inherent system of rules for how concepts are to be described in Snomed CT; thus, there is a kind of “ready model” for how concepts in the health and welfare services relate to one another. But for successful use of Snomed CT, it must become part of the reference models that are already included in the information structure projects National information structure and Applied information structure. This conclusion may be drawn, inter alia, from the British project NHS Connecting for Health.

Far-reaching project cooperation and knowledge of Snomed CT’s model are prerequisites if the projects are to reach their respective goals.

Development of the Snomed CT area of knowledge

Snomed CT is in itself a complex concept system, at present containing 19 hierarchies for handling observations, procedures and observable properties as well as concepts for handling the context pertaining, for example, to an
observation. Use of Snomed CT requires knowledge at many different levels – from those who are to work on the development of Snomed CT to health and welfare professionals that are to use Snomed CT in documentation of their activities. Most users will probably not need specific knowledge of Snomed CT as such, but they will need to know how and, above all, why structured documentation is essential.

Universities and university colleges with responsibility for the education of health and welfare services professionals and of systems development engineers and those responsible for information and systems are an important target group for training.

Knowledge of Snomed CT is generally low in the Swedish health and welfare services. To this may be added the fact that the need for training is not the same for all target groups. Furthermore, training should be initiated in several stages:

- In a first stage, co-workers in the project and in different cooperation projects should undergo training courses. These courses should build up and maintain knowledge of Snomed CT.
- In a second stage, the project should assist in producing web-based and adaptable educational material. This includes mapping out different target groups’ need of knowledge of Snomed CT.

The Training sub-project will be carried out in cooperation with the Swedish Association of Local Authorities and Regions.

Pilot and model activities

If the investment in the national terminology and classification resource including Snomed CT is to produce the expected positive effects on information management in the health and welfare services, pilot and model activities are a prerequisite. They are therefore part of the national coordination and also often part of the various sub-projects – particularly in connection with verification of translation, mapping and harmonisation as well as in multiprofessional information management.

The project welcomes the participation of different interested parties in pilot and model activities, and we have identified some contexts where such activities may be carried out in order to:

- ensure that Snomed CT contains the concepts that a specific area of operations requires to be able to communicate with the outside world and to keep complete documentation of decided and implemented health and welfare procedures
- show how Snomed CT can be part of information management and used in daily health and welfare activities
- verify classifications and terminologies in the Mapping and harmonisation sub-project.

26
An example of a model activity is Lund University Hospital (USiL) which has notified its interest in actively participating in continued work on the national terminology and classification resource including Snomed CT. Among other things, the hospital will contribute knowledge and personnel to the project’s knowledge base and work. The illustration below describes the areas of cooperation that have been discussed.

Pilot and model activities will take place within the framework of different sub-projects and in collaboration with the Swedish Association of Local Authorities and Regions.

Collaboration with the *National information structure* project

It is essential to be able to communicate documented information safely within and between computer systems, with content and contexts intact. Uniform concepts and terms are therefore required as well as a uniform structure and, in addition, knowledge of how these function together. The national terminology and classification resource including Snomed CT and the *National information structure* project are to provide for this together.

There will be collaboration between the two projects in order to ensure that there is no duplication of work in the projects and that available knowledge is jointly utilised where necessary. The two activities for collaboration below have been identified in an initial phase.

General description of the health and welfare process

For several of the ongoing national projects, the basis for continued work is that the need for information in the health and welfare process is described and that concepts and terms are identified and defined. The illustration below shows the projects and interested parties that have been identified. The *National information structure* project is responsible for the activity.
Verification of concepts and terms of the core of the national information structure.

The National information structure project will, among other things, supply a minimum data set, the common core of information, for expedient health and welfare documentation. This core is an important part of the verification of Snomed CT, and a special pilot project is to be carried out for this verification.

Cooperation with the Swedish Association of Local Authorities and Regions

“The commission means that, in collaboration with the Swedish Association of Local Authorities and Regions, the National Board of Health and Welfare shall encourage and support the introduction and use of the national terminology and classification resource in the health and welfare services.”

[1]

How Snomed CT is to be used in practice in daily health and welfare activities is rather unclear today since most of the current electronic health record systems probably cannot handle the complex concept system that this indeed represents.

The development and introduction of the national terminology and classification resource including Snomed CT must as far as possible be coordinated with the development work already in progress in many county councils and municipalities.

Many practical applications are needed to realise expedient and well structured health and welfare documentation and to find useful work routines. Different areas of activity will presumably have different needs and preconditions and the participation of the profession in this work is therefore of utmost importance.
The Swedish Association of Local Authorities and Regions and the National Board of Health and Welfare have together identified the following key areas for cooperation:

- information efforts and information material directed at the target groups
- web-based educational material directed at the target groups
- training efforts for personnel in both organisations
- joint pilot projects to verify the contents of Snomed CT, to promote multiprofessional information management and to support the introduction of Snomed CT.

Several projects, where concepts and terms and classifications are a structural part, are already in progress in the Swedish Association of Local Authorities and Regions. These projects are important pilot projects for verifying the contents of Snomed CT. An example of such projects is the child health data project, which covers, among other things, child and school health care records.

In a special sub-project – Cooperation and coordination of practical applications – which is led by the Swedish Association of Local Authorities and Regions, different practical applications linked to the development of the national terminology and classification resource are coordinated. These applications will presumably have an influence on other sub-projects too, for example Mapping and harmonisation and A common language.

Cooperation with the Procurement and Financing Office
To support the implementation of the National Strategy for eHealth, county council executives have established a common Procurement and Financing Office with the task of coordinating projects which are of common interest to the county councils and of strategic importance for reaching the objectives of the IT strategy.

Examples of projects of strategic importance include Applied information structure and the National patient summary. Both these projects contain concepts and terms of central importance to the health and welfare services. In addition, special pilot projects for verification against Snomed CT will be carried out.

Cooperation with the Division for Elderly in the Department of social services
The National Board of Health and Welfare has been commissioned by the Government to develop systems for open comparisons in care of the elderly. The commission includes developing statistics based on personal identity numbers and a system for reporting the needs of the elderly, the scope of
health and welfare services’ efforts as well as analysis of the extent to which those efforts meet the needs of the elderly.

A precondition for carrying out the commission is a common language for describing needs, efforts and results. Those parts of the project that deal with these aspects are to be carried out in cooperation with equivalent work in the national terminology and classification resource including Snomed CT.

Cooperation with universities and university colleges

Project plan: Completed in December 2007
Sub-project manager: Lars Berg

The National Board of Health and Welfare needs access to different types of IT support in order to realise a national terminology and classification resource including Snomed CT. This applies particularly to mapping and harmonisation work but also to translation work. The purpose of this IT support is on the one hand that it will provide a better visual overview of the relationship between Snomed CT’s concepts so that it is easier to map correctly and, on the other, enhance searchability in Snomed CT and the different classifications.

A prototype for a visualisation tool was previously produced by the Department for Medical Informatics at Linköping University within the framework of the EU project Semantic Mining. In connection with the translation of ICF, the same department produced a prototype for searching in ICF.

In Semantic Mining, a Swedish-English dictionary was also developed in which the constituent parts come from the classifications. This tool can be developed for use in the mapping project. However, it may also be important for future use in health care records.

The above-mentioned IT tools will increase access to Snomed CT and to WHO’s classification of functioning, disability and health, and also to other classifications. The latter is an essential component in work on multiprofessional information management.

Cooperation with the Department for Medical Informatics at Linköping University has been initiated and, in a first phase, the department is to produce a number of simple and practical aids for visualisation of Snomed CT relationships and also search tools for Snomed CT and the core classifications. At a later stage, these tools will be further developed.

International cooperation

International cooperation relating to a future common reference terminology for the health and welfare services was one of the basic preconditions for the Government’s decision to actively contribute to the establishment of the
International Health Terminology Standards Development Organisation (IHTSDO) and to the take-over of the rights to Snomed CT from the College of American Pathologists (CAP).

IHTSDO was established in Denmark in March 2007 by nine member countries, and since May 2007 it has possessed all rights to Snomed CT. In its report Snomed CT – should Sweden join now or wait?? [10], the National Board of Health and Welfare described the background to Sweden’s decision to join in this cooperation.

The member countries direct the organisation. The immediate responsibility for operations and administration rests with the management board which is appointed by a general assembly. Until 2012 there are two types of membership – charter members and ordinary members. The nine countries that founded IHTSDO, including Sweden, are charter members and thereby have a guaranteed seat on the management board which ordinary members do not have. Thus, Sweden has an opportunity to directly influence the development of Snomed CT in the years ahead. After 2012, a voting procedure will decide which countries are to be represented on the management board. For Sweden’s part, the Ministry of Health and Social Affairs is represented on the board and the National Board of Health and Welfare participates in the general assembly.

Different working groups, in which the member countries are included, are to further develop the concept system, both as far as content and technical matters are concerned. At present IHTSDO is looking into the working group setup and what form the work should take. The project must decide which working groups should be staffed on Sweden’s behalf.

IHTSDO has signed a maintenance agreement with CAP for a transitional period of three years. During this time, maintenance and development processes as well as competence will be transferred from CAP to IHTSDO in accordance with the rules for the new international organisation. Hence, the structures for this are not at present definitely established.

Controlled and open processes are to be established in IHTSDO with a strong focus on quality issues and introduction. The driving force in members’ commitment is to a large extent the creation of processes that lead to utility and concrete use of the concept system in the future. The preliminary structure is illustrated in the figure below.

Proposed organisational structure for IHTSDO (May 2007)

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6 The nine countries include Australia, Canada, Denmark, Lithuania, The Netherlands, New Zealand, Sweden, UK and USA.
Sweden should actively participate in the various parts, both in order to utilise knowledge and experience from other countries and in order to actively contribute to developments. In the future, Sweden must therefore develop competence in the specific areas that constitute the basis of the international structure. Active participation also means that work carried out at home is then reported to the committees and working groups.

Within the framework of IHTSDO, various tools (software) and systems will be developed in support of cooperation and users. There is reason to follow this work since it may mean national financial savings in the long term and also support for efficient administration.

Evaluation of the project goals
It may be seen from the National Board of Health and Welfare status description [10] that Snomed CT is a long-term project. Follow-up of the project goals has been planned as two separate activities – the first after 2.5 years and the other in connection with the termination of the project. Special resources have been allocated in the budget for this.

Follow-up will focus on the following:

- security and content of the terminology and classification resource including Snomed CT
- collaboration with the national information structure principals’ and different professions’ knowledge of and contribution to developments
- review of how documented and translated health and welfare information is perceived in other languages.

Reporting routines
The project manager administers the project’s internal management group. The management group will meet once a month (more often when necessary). The group shall approve detailed project plans, budget and different forms of reports and information material produced by the project. Fixed items on the management group’s agenda include deviations to form the plan and the budget. The management group must be informed of
changes of personnel and there is to be continual reporting throughout the project.

A formal annual report must be submitted to the Ministry of Health and Social Affairs. In addition, there will be regular progress checks in a dialogue. The project shall also transfer experiences and results to the Ministry of Health and Social Affairs annual follow-up of the implementation of the National Strategy for eHealth.

End of project and evaluation of its implementation

The project will terminate when translation of Snomed CT has been completed and is transferred to administration, which at present is planned to take place in March 2011.

At that time, it is to be clearly stated where the financial and organisational responsibility for the national terminology and classification resource including Snomed CT should rest. Information shall also be available concerning whether any questions concerning the quality of the concept system remain to be solved and clear guidelines for how Snomed CT should (may) be used.

The Snomed CT project will be terminated before it has been fully introduced into Swedish health and welfare documentation. It is therefore essential that questions concerning its introduction are emphasised in the follow-up of the National Strategy for eHealth.

The implementation of the project will be evaluated in accordance with an established model once a year or on the request of the management group. A special plan of activities will be drawn up and followed.
### Overall plan of activities and timetable

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<tr>
<th>Activities/ equivalent</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
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<th>2011</th>
<th>2012</th>
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<tr>
<td>Meetings of management group</td>
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<td>Activity plans</td>
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<td>Strategic communication</td>
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<td>National cooperation</td>
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<td>Translation</td>
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<tr>
<td>Mapping and harmonisation</td>
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<td>Common language</td>
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<td>Project follow-up</td>
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<td>Project conclusion</td>
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<td>International cooperation</td>
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</table>

The table above represents the overall plan of activities and timetable for different activities. Each activity is listed along with the years 2007 to 2012, indicating the timeline of their implementation.
Budget and economic preconditions

Competence and resources
The project will require a number of different competences in the next four or five years in order to make Snomed CT available in Swedish and to adapt the concept system to Swedish conditions and needs. To adapt, develop and maintain the system, coordination of competence and resources is required both within and outside the Board. The availability of both competence and continuity also needs to be secured in the long term within and outside the Board for administration of Snomed CT as part of the national terminology and classification resource.

The cost estimate below is based partly on cost estimates from the Danish National Board of Health’s translation into Danish and partly on the work carried out so far to identify efforts that must be initiated in Sweden in the short term in order to secure processes and quality and also the need for evaluation work to answer questions concerning how Snomed CT is to be administered and supplied in the long term.

The cost estimate further includes estimated costs for competence-raising measures, informational efforts as well as support for pilot activities during the project period. On the other hand, costs for long-term administration of a cohesive national terminology and classification resource including Snomed CT are not included nor costs for the introduction and efficient use of Snomed CT in the health and welfare services.

It has emerged during preliminary work that the activities that are necessary for adaptation must start earlier and on a larger scale than previously estimated. Earlier calculations did not include, for example, cost estimates for mapping and harmonisation to any appreciable extent.

Several factors can change the scenario regarding costs during the project period. Access to persons with the necessary knowledge and experience for different sub-projects is the most limiting factor for the entire project and for use in the long term. Costs for training and recruitment may increase and it may be difficult to carry out the activities at the speed specified. Technology costs may also change, on the one hand through opportunities for using of systems and applications developed for IHTSDO and, on the other, as a result of changed requirements or preconditions for the national administration regarding IT tools and the scale of development work. The prices of IT services and financial expenses may also change over time.

The table below gives preliminary costs for each individual year of the project (2007-2010) and for the whole period. The table also gives the costs of a hypothetical operational situation in 2011 in which certain project costs are still included.

Costs for the first year (2007) are reduced since most activities will not get underway until the autumn of 2007.
## Annual cost of project for the period 2007-2010 and for 2011 (thousands of SEK)

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<tr>
<td>Project management – project manager, administration, including communication and coordination of information</td>
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<td>4 600</td>
<td>4 600</td>
<td>4 600</td>
<td>16 500</td>
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<td>International participation in IHTSDO – board, committees.</td>
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<tr>
<td>SNOMED CT licence - including startup costs. 2)</td>
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<td>1 050</td>
<td>5 750</td>
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<tr>
<td>Translation of Snomed CT, including IT solution and administration. 3)</td>
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<td>21 200</td>
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<td>Mapping and harmonisation. 4)</td>
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<td>Multi-professional terminology work</td>
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<td>Evaluation of the project on two occasions. 6)</td>
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<tr>
<td>Support in order to encourage use, pilot project. 7)</td>
<td></td>
<td>5 000</td>
<td>5 000</td>
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<td>15 000</td>
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<td>TOTAL</td>
<td>16 300</td>
<td>46 680</td>
<td>48 430</td>
<td>40 030</td>
<td>151 440</td>
<td>18 750</td>
</tr>
</tbody>
</table>

*) Start of project 2007, reduced costs.

1) Web-based training three years, in total about SEK two million.

2) SNOMED CT licence per year – about SEK 1 050 000. Member/entrance fee about – SEK 1 050 000. The annual member fee is index-tied. In the first year an extra charge is included to buy SNOMED CT from CAP. This expense can be deducted when the association’s finances so permit.

3) Web application for translation including support and training and also translation service. The annual cost is shifted six months, i.e. the last six months will be in 2011. In total about four years at a certain pace of development.

4) This sub-project was previously not fully cost estimated, however, planning was included in the project management’s costs. Refers to purchase of services and one-time costs for development projects during 2008 and 2009 of in total about SEK four million.

5) During the project period, costs of administration and operation are mainly included in other sub-projects.

6) Evaluation in 2009 and 2011 at a total cost of about SEK 2.5 million.

7) Support to pilot projects over three years, total cost about SEK 15 million.
References

1. Government decision no. 00-5137/2007


4. *Klassifikation av funktionsställänd, funktionshinder och hälsa (International Classification of Functioning, Disability and Health) (ICF).* National Board of Health and Welfare; 2003


7. *Individbaserad verksamhetsuppföljning för personer som insjuknat i stroke och personer med psykiska funktionshinder. (Follow-up of activities based on the individual for persons afflicted by stroke and persons with mental disabilities)* Stockholm: National Board of Health and Welfare; 2006

