

The Norwegian Laboratory Coding System – what became of the visions?

The Norwegian Laboratory Coding System was intended to ensure unambiguous communication between requisitioners and laboratories. The purpose of this was to raise the quality of laboratory medical services in Norway, and conform to the vision of one inhabitant – one medical record. Why did this never materialise?

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In 2003, the Storting took the decision that a shared classification system for public and private laboratory work was to be developed in Norway (1). The Norwegian Directorate for Health and Social Affairs (later the Norwegian Directorate of Health, now the Norwegian Directorate of eHealth) was commissioned to manage and coordinate the necessary development work. The coding system was named the Norwegian Unified Coding System for Laboratory Services (NEKLAB) (2), and in 2013 this was simplified and renamed the Norwegian Laboratory Coding System (NLK) (3, 4). The coding system was made mandatory in Norwegian laboratories from 1 October 2014 (5).

National overview

The primary purpose of the Norwegian Laboratory Coding System was to ensure unambiguous communication between requisitioners and medical laboratories when ordering and providing results of laboratory analyses and investigations. The fact that different laboratories in Norway could use different names for the same analysis, for example «wbc», «leukocytes» and «leucocytes», and that no unique identifiers (analysis codes) existed for each analysis, had long been a problem.

With the Norwegian Laboratory Coding System, there was a wish to achieve a common national list of all analyses and investigations, with unique names and standardised shared coding encompassing the six laboratory sciences. In short: one analysis – one name – one code.

All of the six laboratory sciences –

medical biochemistry, medical microbiology, medical genetics, clinical pharmacology, pathology, and immunology and transfusion medicine – welcomed the initiative to create an unambiguous, standardised, shared coding system.

So why did this never materialise?

Failed project management

The task that the Directorate of Health undertook – to develop and implement the Norwegian Laboratory Coding System – is particularly demanding and complex. No country has previously introduced a mandatory, shared laboratory coding system that encompasses all the laboratory sciences.

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This type of pioneering work requires good planning, solid endorsement by the health enterprises, a generous schedule, regular and close follow-up, qualified advisors, adequate information flow, high professional ambitions, careful interdisciplinary coordination among the sciences, good quality control, and the ability and willingness to listen to input from those involved. Unfortunately, the Directorate of Health has fallen short on all these points in its management.

The international coding system that was used as a basis and which the authorities wished to introduce in Norway was primarily developed for medical biochemical analyses (6). It was not designed for other

laboratory specialties, Norwegian language or Norwegian laboratory tradition. The professional communities called attention to this challenge at an early stage, and reiterated this criticism when the first version of the coding system was published in 2013 (7). They recommended that the Directorate of Health enlist expertise from the six laboratory sciences to coordinate a structured review with professional and linguistic systemisation of the Norwegian Laboratory Coding System and that a generous and realistic schedule for this work be drawn up (7, 8). This advice was not followed. On the contrary, the coding system was made mandatory and was to be implemented at a time when it was far from complete, whether for professional, technical or economic purposes (5).

This disregard of the input from the professional community has unfortunately been a recurring theme in the project management of the Norwegian Laboratory Coding System. The same thing occurred when the Directorate of Health promised the professional communities that it would take charge of developing an interdisciplinary table of analytical methods that would detail the differences in results when the same analysis was performed using different methods (9–11). This entire project was suddenly shelved with no justification (12–14), contrary to a unanimous recommendation from the professional communities. The consequence of this action is that we now have a coding system that cannot be used for a sound economic reimbursement scheme (15, 16), but which unfortunately the Directorate of Health nevertheless plans to use for this purpose (17).

The trust of the professional communities in the Directorate for eHealth as the coding system administrator has been severely undermined by these matters and many more of a similar nature.

Status today

Today, three years after the Norwegian Laboratory Coding System was made mandatory and almost two years after it was

declared ready for implementation, the coding system's architecture still has fundamental flaws, which mean that it does not cater to all the laboratory sciences. There

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is no defined practice for the nomenclature of analyses that takes account of the needs of the different laboratory sciences (18–20), no differentiation of analyses on the basis of analytical methods (9–11), and no national standardisation of the results issued (20). The code overview on the Directorate of Health's website (4) is unstructured and fraught with errors (21). Codes are registered with no review specific to each science, or quality assurance (22), nor does the coding system draw sufficient distinction between the sciences, or correctly classify the analyses that are included (8, 21). This makes it extremely difficult, both for the Directorate for eHealth and the professional communities, to quality-assure the content. The fact that the *first* interdisciplinary working meeting for the coding system where all six laboratory sciences were in attendance was not held until 2016, more than ten years after the work on the coding system began, and more than two years after it was implemented, says much about the project management (23).

In addition to the overall, systematic flaws, there are considerable deficiencies in several of the six laboratory science areas. For medical genetics and pathology, the deficiencies of the existing coding system are considered to be of such a magnitude that the professional communities recently recommended that existing codes be deleted and a fresh start be made with an entirely new structure (23). For clinical pharmacology, a recent review of the coding system uncovered such gross and wide-ranging errors that the professional community now advises laboratories against using the Directorate of Health's search engines and code overview as works of reference (21). In addition, the laboratories themselves have indicated weaknesses in the coding system that may entail a threat to patient safety (24). Notwithstanding this,

the Directorate of Health has now opted to move the coding system on to what it terms a maintenance phase (25), in which the role of the professional communities is trivialised and marginalised to an even greater extent than previously, if such were possible (26).

Why do we need to fight for what is obvious?

A project that aims to ensure precision in professional communication within several specialist fields is comprehensive and challenging, and it goes without saying that those who are foremost in managing their specialist expertise after many years of training and experience, must of necessity also be those who help to define standards and fundamental principles for design and maintenance. This is so obvious that it seems strange that it needs pointing out at all. When one has to argue one's case in order to be heard in such matters, it means that those addressed understand neither the requirements nor the complexity of the area they are tasked with managing.

No one is well-served by the increasing mutual antagonism between the professional communities and the coding system administrators, least of all the users of the service that is to be developed. Now it is up to the Directorate for eHealth to ensure that the trust between the professionals and the management is restored.

Working together for a national laboratory coding system

The ambitions for the Norwegian Unified Coding System for Laboratory Services (1, 2) and later the Norwegian Laboratory Coding System (3) were high. Now the coding system managers should revive these ambitions by recognising that this project is ground-breaking in a global context, something which the coding system's international partners can also benefit from.

First and foremost, we need a national laboratory coding system that caters to patient safety and professional considerations, and later to secondary objectives such as statistics and economics. We have already spent too much time and effort on a slipshod process. The Directorate for eHealth must henceforward ensure inclusive, coordinated and properly endorsed processes. Only then can we attain a functional Norwegian Laboratory Coding System that accords with the needs of all the parties.

All the documents are arranged thematically, and an overview of these is available on the Pharmacology portal [27].

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