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Cooperation between national scientific societies and the government: a Dutch initiative

Introduction

In 1982 a group of Dutch and Belgian scientists interested in radiation dosimetry established a society with the goal to promote appropriate use of dosimetry of ionising radiation both for scientific research and practical applications. The society was named Nederlandse Commissie voor Stralingsdosimetrie, NCS (Netherlands Commission on Radiation Dosimetry), <http://radiationdosimetry.org/>

To pursue its aims, the NCS accomplishes the following tasks:

- Participation in dosimetry standardisations;
- Promotion of dosimetry intercomparisons;
- Drafting of dosimetry protocols;
- Collection and evaluation of physical data related to dosimetry.

The board of the NCS is a multidisciplinary team that consists of representatives from (medical) professional societies, all of which are involved in the clinical application of radiation, radiation safety and the Dutch Metrology Institute VSL. A full list of participants can be found on <http://radiationdosimetry.org/ncs/supporting-societies>. These representatives are all active in the field.

To maintain its independence, the NCS is not linked to industry or any governmental organisation. The financial means come from supporting professional societies represented in the board.

Methods

Since the NCS is deeply rooted in the hospitals, all challenges regarding the use of ionising radiation are quickly presented to the NCS and acknowledged. For practical problems a temporary subcommittee is established that gives practical guidance based on the scientific literature.

Examples of current NCS subcommittees are:

- eye lens dosimetry: development of a practical guideline for dealing with the reduced annual eye lens dose;
- proton therapy: development of uniform guidelines for the absolute and relative dosimetry of the pencil beam scanning modality with continuous and pulsed proton beams, focusing on new proton therapy facilities;
- cone beam CT: development of uniform guidelines for the commissioning and quality assurance.

The structure of the subcommittees within the NCS is presented in Figure 1.

The members for subcommittees are recruited from the field and report to the NCS Board. Through the vast network of the NCS, the NCS reports are comprehensive and widely applicable in different hospital settings. The reports appear to be highly appreciated worldwide.

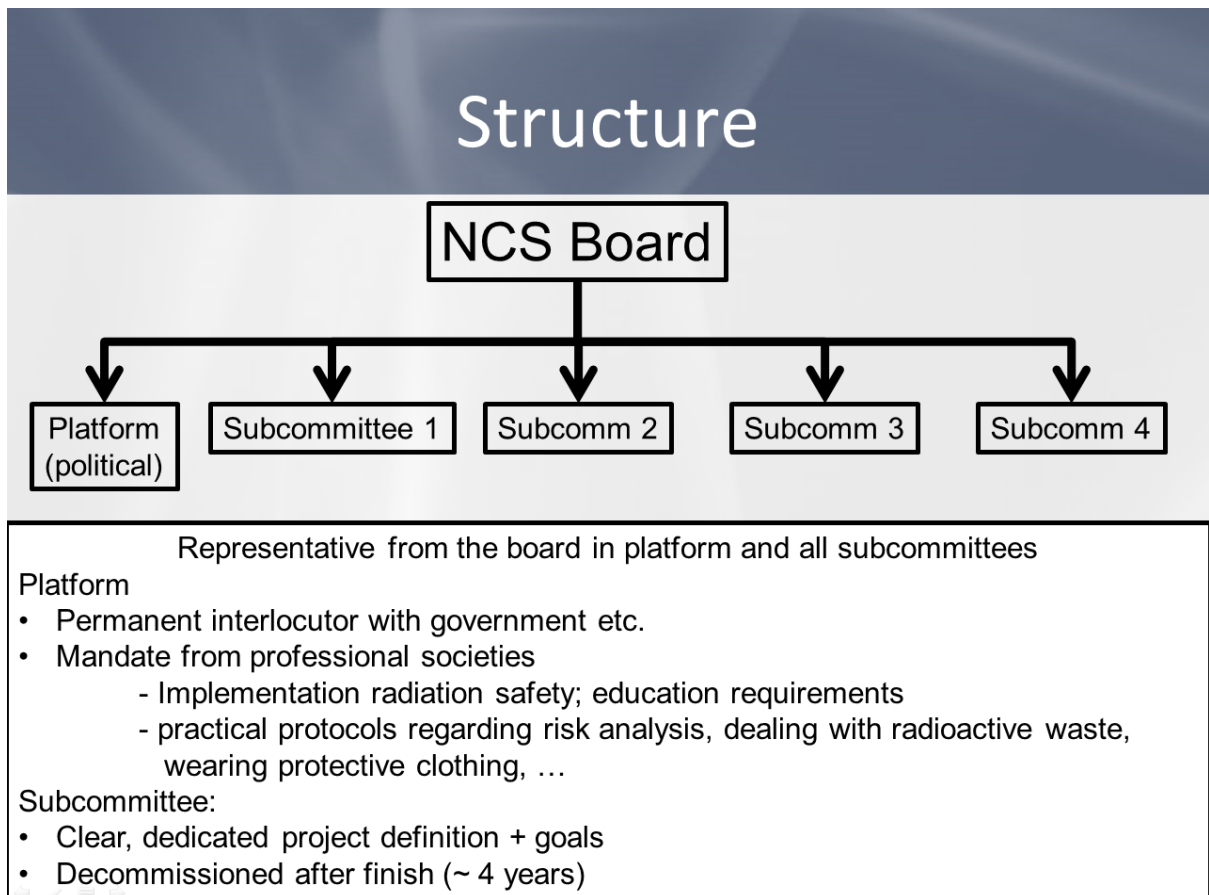


Figure 1. The relation between the NCS Board, the Platform and the subcommittees.

Advisory Platform for radiation laws and regulation in hospitals

The advisory Platform 'Stralingsbescherming in het ziekenhuis' has been established in 2010 by three medical physics experts (MPEs). The task of the Platform is to advise on radiation safety laws and regulations. It establishes practical guidelines for existing and new laws and regulations. The Platform maintains close contacts with the Dutch ministries of VWS (Ministry of Health, Welfare and Sport) and SZW (Ministry of Social Affairs and Employment). The Platform plays a key role in effective and efficient implementation of European directives into national law.

Currently, the Platform advises the Dutch government on the implementation of the Basic Safety Standards Directive (96/29/Euratom). Their knowledge of the daily operations, and consultation of their adherents, enables them to advise the lawmakers on the practical implications of new regulations. Due to this engagement, new regulations will be accepted and implemented more easily within the hospitals.

Furthermore the Platform is involved in composing ministerial decrees on, for example, organisational structures, attainment targets and associated training for professionals in radiation protection working in the Dutch hospitals. Issues discussed in the Platform that lead to practical guidelines deal with, for example, radioactive waste and uniform risk analysis procedures.

Results

So far, the NCS has published 27 reports. Some examples of these are:

- QA for Tomotherapy Systems (2017)
- Human Exposure to Ionising Radiation for Clinical and Research Purposes: Radiation Dose & Risk Estimates (2016)

- Code of practise for the QA and QC for Intensity Modulated Radiotherapy (2013)
- Diagnostic Reference Levels (DRL's) in The Netherlands (2012)
- Code of practise for personal dosimetry of professionals wearing protective clothing during radiology (2008)
- Quality control in Brachytherapy (2000)
- Dosimetric aspects of Mammography (1993)

The publication of the report on diagnostic reference levels (DRLs). was accompanied by several meetings explaining the need and use of these (<http://radiationdosimetry.org/ncs/publications>). The collaboration with different professionals such as radiographers, radiologists and Medical Physics Experts has helped establish proper DRLs and ensuring wide acceptance in the hospitals.

The NCS website is being accessed from different countries in the world as can be seen in Figure 2. Obviously, the site is visited most frequently from the Netherlands (over 3500 times in 2016), followed by the United States of America (over 1700 times), the United Kingdom (over 700 times), Belgium (over 450 times) and Canada (over 350 times). These visits resulted in almost 6000 downloads of NCS reports in 2016.

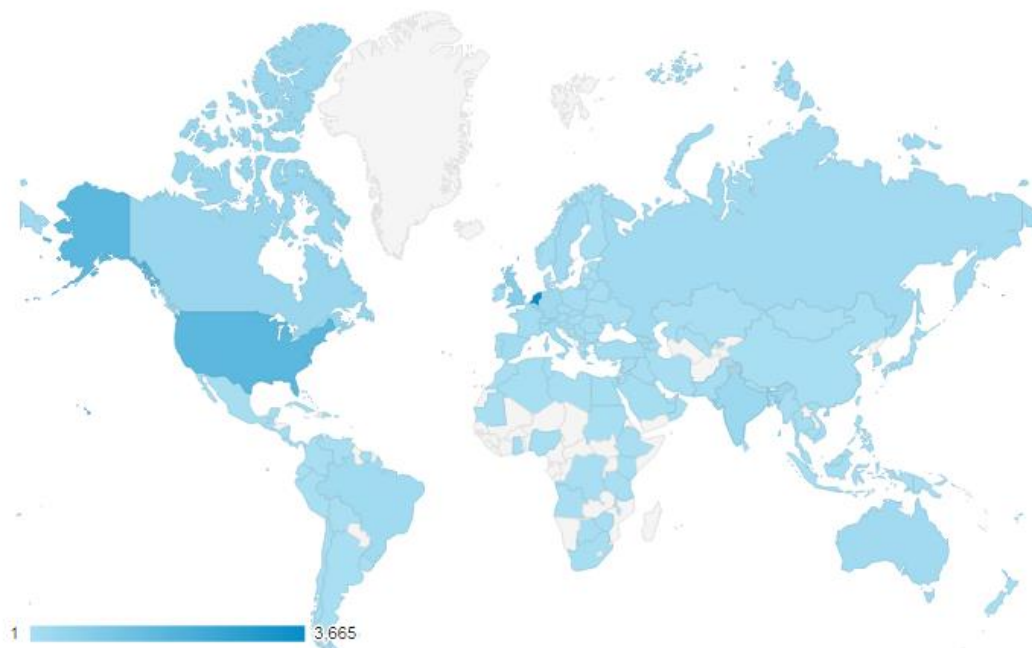


Figure 2. Number of unique website visitors in 2016 per country, ranging from 1 (light blue) to 3665 (dark blue). No visits were registered from the countries depicted in grey.

In addition, the close but independent collaboration between the NCS Platform and the Dutch government helps solving issues before they turn into problems.

So far the Platform has formulated:

- A practical and uniform method for radiation risk analyses;
- the interpretation of dosimetry badge readings for professionals wearing the badge outside their protective clothing;
- practical and safe procedures for disposing radioactive waste.

Implementing law enforcement in professional collaboration between all stakeholders, including the government, assures a better understanding of the background of novel regulations, and improved

motivation and adherence to the new rules. This reduces motivation issues regarding procedures that otherwise may seem irrelevant and an administrative burden.

The Dutch government acknowledges the NCS reports and recommendations as field standards, thereby helping professionals in their daily work. Since the reports are devised by the fellow professionals, it is assured that the guidelines are relevant, up-to-date and strict but achievable. This helps considerably in implementation and compliance throughout Belgian and Dutch hospitals.

Discussions and conclusions

The representation of all professionals working with ionising radiation in hospitals has rendered the NCS as an effective and efficient society for setting up standards and procedures. Although the NCS has initially been established for dosimetry mainly, the broadening of its scope is generally appreciated. The NCS has established a wide and effective network to help professionals in hospitals to work effectively and safely with ionising radiation. In addition, the NCS has an effective communication with the government for resolving legal issues.

These results could not have been established without the considerable effort of all volunteers participating in NCS subcommittees, the NCS Platform and the NCS Board. Hereby we would like to thank all professionals who have been active since the establishment of the NCS.