



Real-time surveillance of laboratory confirmed infectious diseases based on the Danish Microbiology Database (MiBa)

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Audience

Anyone working with aspects of microbiology reports for National surveillance for communicable diseases and microorganisms.

Objectives

Sharing Danish experiences with establishing a national microbiology database and showing use of SNOMED CT® for standardization and harmonization of clinical content in the microbiology report. Alignment of the Danish work with the Microbiology Reporting Project and Organism & Infectious Disease Model Project.

Abstract

Background: The Danish microbiology database (MiBa) is a national database that automatically accumulates patient test reports from all Danish Departments of Clinical Microbiology performing all microbiological tests ordered by general practitioners and hospitals. MiBa was launched in 2010 in order to provide healthcare personnel with nationwide access to microbiology reports and to enable real-time surveillance of communicable diseases and microorganisms. In MiBa all local and national codes are mapped to shared codes. We describe how the microorganism hierarchy in SNOMED CT is used as the basis for shared codes in MiBa.

Methods: Reports are transferred real time to MiBa by a standard xml transfer protocol.. We used the microorganism hierarchy in SNOMED CT as the basis for a new national standard terminology for microorganism findings. A national group of clinical microbiologists with taxonomic expertise² evaluated both the local terms and the SNOMED CT terms and selected the preferred term for use in MiBa.

Results: MiBa had accumulated 7700 local terms in the microorganism table. So far the working group has evaluated 6550 local terms and mapped these to 1060 preferred terms. 720 have been mapped 1:1 to SNOMED CT CIDs.

Discussion and perspectives: We are now developing a new xml protocol that makes it possible to add more attributes to the microbiology report, e.g. MRSA, ESBL, specific genes and virulence factors, and there is a need for classifications for subtyping data and other microbial properties as well as for a shared model for microbiology reporting.

MiBa represents a novel and flexible approach for national surveillance. Complete surveillance of microorganisms and tests can be established without any extra reporting burden for laboratories or clinicians. From MiBa timely information on the transmission of infectious diseases at both national and regional level can be distributed for regional and national risk assessment, preparedness and planning.

References

1. Voldstedlund M, Haahr M, Mølbak K, the MiBa Board of Representatives. The Danish Microbiology Database (MiBa) 2010 to 2013. Euro Surveill. 2014;19(1):pii=20667.
2. The MikroTerm group is a working group under the Danish Society of Clinical Microbiology. <http://dskm.dk/arbejdsgrupper-2/mikro-term.html>