Report from the 9th Nordic-Baltic Network for water and health, 1-2 December 2022, Oslo, Norway

By Jose Antonio Baz Lomba and Susanne Hyllestad

Jose Antonio Baz Lomba (Ph.D) is senior advisor and *Susanne Hyllestad* (Ph.D) is head of section, both at Section of Zoonotic, Water- and Foodborne Infections at the Norwegian Institute of Public Health.

Sammendrag

Rapport fra det 9. Nordisk-Baltiske Nettverk for Vann og Helse, 1. – 2. desember 2022. Det 9. møtet for Nordisk-baltiske nettverk om vann og helse ble avholdt 1. og 2. desember 2022 i Oslo. Seminaret ble arrangert av Helse- og omsorgsdepartementet, Mattilsynet og Folkehelseinstituttet i samarbeid med Nordisk Ministerråd[1]. Nesten alle de nordisk-baltiske landene var til stede, og for første gang inkludert Færøyene. Danmark ble dessverre hindret i å delta i siste liten. Enkhtsetseg Shinee fra WHO var også til stede. Årets møte var viet til drikkevannsberedskap, implementering av det reviderte EU-direktivet om drikkevann og avløpsovervåking av SARS-CoV-2. I denne artikkelen gjengis noen av hovedpunktene fra møtet.

Summary

The 9th meeting for the Nordic-Baltic network on water and health was held on December 1st and 2nd in Oslo. The seminar was organized by the Norwegian Ministry of Health and Care Services, the Norwegian Food Safety Authority and the Norwegian Institute of Public Health, in cooperation with the Nordic Council of Ministers[2]. Representatives from almost all the Nordic-Baltic countries were present, including the Faroe Islands that was attending for first time. Denmark was unfortunately hindered to attend in the last minute. Enkhtsetseg Shinee from WHO was also present. This year's meeting was dedicated to drinking water preparedness, implementation of the revised EU directive on drinking water and wastewater surveillance of SARS-CoV-2. This article summarizes some of the main points discussed during the meeting.

The Nordic-Baltic Network for water and health

The countries in the Nordic-Baltic region face many common challenges and benefit from strong cooperation. The objective of the Nordic-Baltic network for water and health is to facilitate the implementation of regulations, international agreements and national objectives regarding safe drinking water, bathing water, water for food purposes and sanitation in participating countries, to help preventing the spread of diseases via water.

The meetings have been conducted yearly since 2012, except a void during the pandemic (table 1).

Drinking water preparedness

In light of the crisis unfolding in Ukraine, the purpose of setting drinking water preparedness on the agenda was to discuss and share practices on how the countries in the network prepare for mitigating and managing potential unwanted events threatening the drinking water supply

Table 1. Overview of meetings in the Nordic-Baltic Network for water and health

Nordic-Baltic meetings	Year
1st Oslo, Norway	2012
2nd Uppsala, Sweden	2013
3rd Oslo, Norway	2014
4th Tallinn, Estonia	2015
5th Helsinki, Finland	2016
6th Vilnius, Lithuanian	2017
7th Uppsala, Sweden	2018
8th Riga, Latvia	2019
9th Oslo, Norway	2022

chain. The meeting started with a powerful message from Ole Henrik Krat Bjørkholt (State Secretary, Ministry of Health and Care services, Norway) who emphasized the difficult times we are facing and the crucial importance of water. The Russian aggression towards Ukraine has raised concerns about the vulnerability of drinking water systems that unfortunately, have been ignored by governments in recent years. Furthermore, electricity price and supply chain crisis are adding more complexity to the equation. Thus, he emphasized that the main goal of the Network is strengthening water security and preparedness through the Protocol on Water and Health and to share knowledge within the network.

During the meeting, Torgrim Aune an Øyvind Ørmen (Lieutenant colonels, Norwegian Armed Forces Joint Medical Services, Norway) and Maria Khalili (Swedish Food Agency, Sweden) conducted two introductory presentations highlighting relevant health risks associated with vulnerabilities of our drinking water supply chains, reminding the audience that this is the main purpose and relevance of this Network.

The representatives from Norwegian Armed Forces Joint Medical Services from Norway presented the NATO requirements with historical references to the Cranberry War, where most part of soldiers participating in this war from Norway and Sweden died due to disease or poor hygiene. This information has been incorporated into modern wars where power plants and drinking water facilities are targeted as main objectives for attacks. The presentation also highlighted recent incidents of attempts to trespass waterwork facilities in Norway (Bødo 2018, Drammen 2021 and Øverbygd 2022), and claimed that some critical information about these facilities should be classified to avoid incidents with lunatics trying to harm the general population. The presentation finalized with technical information on regulations for water supply to military forces when the activity is hosted by a NATO country.

The representative from Sweden continued the narrative introduced above, highlighting the challenges of providing water supply during times of crisis and war. Sweden is acting on this challenge with a new enquiry to increase preparedness to ensure robust continuous delivery of water services, based on producing suggestions, selecting responsabilities and defining roles. Difficulties on communication and decission-taking within different agencies and actors will be a recurrent topic during the whole event. She shifted the discussion from war-related water issues to supply chain crisis, defined from her as the outcome of the free market era, in which countries lacked preparedness plan against shortage alerts for coagulants or semiconductors, rising energy costs, or stock piling strategies. The solution is to establish dialogue and identify new solutions for procurement during this difficult situation and more importantly, identify self-sustainable solutions for the long-term to avoid risk of shortage in the future.

Riina Liikanen (Senior Adviser, Finnish Water Utilities Association (FIWA), Finland) introduced the Water Services Pool, a Finish cooperative organization inside the health cluster that provides support to water utilities with different services. They are currently establishing a strategy to improve preparedness, enhance cooperation and maintain strategic

and operational situation awareness. They are also planning to revise the emergency plans for military to have adequate power backup, availability of critical chemicals, both physical and cyber-security and secure critical services. As example, they are going to test a 2-hour electricity shortage for preparedness during this winter.

Arni Petersen (Official Inspector, Faroese Food and Veterinary Authority, Faeroe Islands) presented an overview of the water situation in the Faeroe Islands. He discussed some historical events and the main threats during the last year: fire events and the consequences of drought and heavy rain. He showed some interesting metrics on high water consumption compared to other Nordic countries attributed to the large fish industry activity vs small population.

Inge E. Næsset (Director Regulation and Control, Norwegian Food Safety Authority) and Anders Bekkelund (Senior Adviser, Norwegian Institute of Public Health, FHI, Norway) finished the session with some notes on the Norwegian situation. The representative from the Norwegian Food Safety Authority highlighted the improvement of some parts of the old pipeline infrastructure as one of the main priorities in Norway. In terms of preparedness, Norway has a good coverage with contingency plans in place. Furthermore, a multi-disciplinary group of experts has recently performed a work providing public guidance knowledge on nuclear and radioactive emergencies[3]. As for the case in Finland, Norway is also assessing the preparedness plans by selecting 100 waterworks for vulnerability assessment test in case of nuclear events. The representative of the Norwegian Institute of Public Health introduced their mandate and structure on preparedness and described the different roles and responsibilities of the waterworks, municipalities, and agencies in Norway.

The session concluded with a brief roundtable on the status of drinking water preparedness from the other countries participating in the meeting: Lithuania, Latvia and Estonia. Lithuania is currently conducting a drinking water risk assessment based on the Drinking Water Directive. Lithuanian water supply providers are classified as critical resources and are under increased security due to the war in Ukraine and the proximity to some nuclear plants. Latvia presented the national plans for preparedness and highlighted the financial issues to sustain the infrastructure and adjust to the new protocol for water and health is of concern. Estonia plans to pass new legislation to address gaps on current risk management plans for drinking water suppliers.

Revision of the EU directive on drinking water

After 20 years in operation, the EU directive on drinking water was revised and changes are effective from 2023. In the meeting, countries shared their plans and experiences integrating and harmonizing the revisions in their drinking water legislations, or how the revisions are taken care of in other regulations in the countries. Two of the critical challenges identified were how to fulfil the human right to access to drinking water and requirements to public communication of drinking water status.

Dace Bumane (senior expert of Division of Environmental Health, Department of Public Health, Ministry of Health of Latvia) described the difficulties trying to get financial support from national agencies. Furthermore, they estimate that the implementation of the new regulation from the Directive will increase their expenses by a factor of 10. Latvia is currently using some EU funding to cover these activities. Recently, they have found out that they have insufficient specialist resources to ensure optimal operations. Therefore, the situation described is of high uncertainty and support from other Member States is needed.

Ramon Nahkur (adviser, Ministry of Social Affairs, Public Health department. Estonia.) presented the second most frequent issue after funding: lack of responsibility and agreement among the Ministries. In this case, between the Ministry of Health and the Ministry of Environment. He described the process where these two

agencies had to agree to commit with the transposal of the directive. He finalized the presentation describing the challenges for the quality control and risk assessment update and the added financial cost. In this case, Estonia gave the responsibility of risk assessment to the water suppliers and the risk management to a group of different actors such as Ministry of Health or local municipalities.

Jaana Kilponen (senior Officer, National Supervisory Authority for Welfare and Health (Valvira), Finland) concluded the session with the progress situation in Finland. She highlighted the issues described by the other speakers and mentioned the large amount of administrative work involved in incorporating the recommendation from the Drinking Water Directive. Finland has developed a guideline for risk-assessment based on the occurrence of legionella and lead, health effect of those and management and remedial actions. Furthermore, a new digital tool that will facilitate access to drinking water quality parameters to the general population was presented.

The session concluded that cooperation between states and effective knowledge sharing is critical among the Nordic-Baltic alliance to achieve the goals set by the revised EU Drinking Water Directive.

Wastewater surveillance

Wastewater surveillance of SARS-CoV-2 has emerged as an important tool in public health surveillance providing early warning signals for outbreaks and monitoring the spread of the disease. This approach has been widely used among several countries for SARS-CoV-2 and it has also been assessed for other pathogens. During the meeting, WHO elaborated on their perspective of wastewater surveillance and how this approach has been incorporated as a part of many international public health surveillance systems. Several of the countries shared their experiences on wastewater surveillance and its relevance for the national pandemic preparedness plans.

Enkhtsetseg Shinee (technical Officer, WHO European Centre for Environment and Health, WHO) introduced this topic presenting the past and future of this approach. She highlighted the growing number of countries reporting SARS-CoV-2 in wastewater and shared the progress of this approach within WHO. After an expert consultation through the Umbrella project in 2020, WHO assessed the "end-user demand side" to better understand how environmental surveillance data could be integrated with clinical data for public health decision-making. The outcome, an interim guidance released in April 2022[4] with all the lessons summarized in these potential use-cases: early-warning system, reemergence of new variants, track trends, improve cost-effectiveness of public health interventions/actions, targeting vulnerable setting such as hospitals or schools, identifying and track pathogens or data bank. Enkhtsetseg finalized her presentation supporting the needs to organize an expert group meeting to exchange scientific development, create a background document on wastewater surveillance and support countries in developing procedures and regulations for setting up environmental surveillance programs for SARS-CoV-2 and other pathogens.

The rest of the session was focused on the different experiences on wastewater surveillance from four different countries: Estonia, Finland, Latvia and Norway. Although the four surveillance systems were at different levels of completion, they all shared a common denominator, the initial complexity identifying leading actors, roles, responsibilities and lack of engagement from public sector and Ministries.

Lauri Lieppkalns (chief specialist of the Environmental Health Department, Health Board, Estonia) started his presentation describing the different competences and internal structure of the Estonian Health Board. In Estonia, the first project on wastewater surveillance was conducted at the University of Tartu and funded by the Ministry of Education. Since 2022, the Health Board took the leadership, and they are currently analyzing SARS-CoV-2 with a coverage of the 66% of the total Estonian

population. Lauri presented the online dashboard and confirmed their intention to expand the system with whole genome sequencing, antimicrobial resistance (AMR), polio surveillance and connecting the to the EU platform DEEP.

Tarja Pitkänen (assoc. prof, chief specialist, THL, Finland) introduced their involvement in some of the early programs on wastewater surveillance on polio and illicit drugs. This previous experience and established infrastructure and communication was critical to scale during the pandemic. The Finish wastewater surveillance program was funded by the Government and the Ministry of Public Health, and they covered a 60% of the total population having a good correlation with clinical data. At the same time, the WastPan project (11.2020 – 10.2023) emerged to go beyond SARS-CoV-2 and comprehensively assess the introduction of other pathogens such as viruses, bacteria, AMR, parasites or yeast. This project was funded by the Finish Government, Academy of Finland, Ministry of Agriculture, Ministry of Environment, National Emergency Supply Agency, Finish Water Utilities Development Fund and support from the European Commission. This cross-sectoral collaboration was a lesson to the rest of the network. Another good lesson was the dissemination activities the Finish team has with communicable disease doctors every Friday. She finished the presentation announcing TruSTme, a project leaded by NORCE that will explore the usefulness of wastewater surveillance for AMR.

Mr. Sandis Dejus (senior researcher, Riga Technical University, Water Research and Environmental Biotechnology Laboratory, Latvia) shared the lessons learnt during the development of the wastewater surveillance system for SARS-CoV-2 in Latvia. Funded by a national research program from the Ministry of Agriculture in July 2021, the wastewater surveillance system was structured in three main pillars: an external laboratory performing the analysis, the university processing the results and collecting clinical data, and the Ministry of Health disseminating the information. The program covered 57% of the population and it showed a good correlation with clinical data. The research team conducted experiments on population normalization using mobile phone data. They also created models to predict incidence claiming a prediction error below 10%. To conclude, he stressed the difficulties with complex bureaucracy, funding mechanism and low implication and response from the institutions.

The session concluded with a presentation by Elisabeth Madslien (Senior adviser, Norwegian Institute of Public Health, Norway) sharing the Norwegian experience on wastewater surveillance. She highlighted the initial lack of information on the effectiveness of this approach as a complementary tool for Public Health. For this reason, FHI performed a systematic review assessing the ability to detect variants, effectiveness as an early warning system and evaluation of the public health impact and control measures. After the positive findings and the international growth of the approach, Norway started a pilot program in 2022. With a coverage of the 30% of the Norwegian population, the results so far are showing a good correlation with clinical data. However, with the decreasing testing activity the value of wastewater surveillance is higher than ever. Results are shared at FHI's website and dissemination activities are conducted frequently with municipal doctors and national authorities. Elisabeth finalized her presentation announcing the continuation of the pilot project until March 2023 and the preparation of the second systematic review with an update of the literature.

Closure

After more than ten years of meeting, disrupted with a pandemic event, the statutes for the network were revisited for relevant updates. It was clear that the changes in EU drinking water directive, which was initially a part of the common topic of interests, was still valid. In addition, the situation in Ukraine highlights drinking water preparedness as a mutual concern.

Figure 1. Delegates from the Nordic-Baltic countries in the 9th meeting in the Nordic-Baltic network meeting of water and health.

The responsibility of hosting the Nordic-Baltic network meetings goes on rotation, and next meeting may tentatively be held in Estonia.

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