Baltic Marine Environment Protection Commission

Fourth Meeting of the HELCOM Correspondence Group on Pharmaceuticals (HELCOM CG PHARMA)

CG PHARMA 4-2018

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Background

The Status report on pharmaceuticals in the Baltic Sea region jointly published by HELCOM and UNESCO triggered a number of follow up processes and regional projects aimed at filling in identified knowledge gaps and also on investigation of opportunities to mitigate or prevent releasing of medical substances into the aquatic environment. One of the first practical consequences of the Status report became the new HELCOM test indicator on diclofenac covering almost the whole "life cycle" of this compound from the data on consumption through sources and pathways to concentrations in marine environment. Nonetheless, the Status report identified therapeutic groups and individual medical substances frequently detected in the marine environment as well as their sources.

The main sources of pharmaceuticals in the Baltic Sea region are likely the excretion of active substances consumed by human through urine and feces as well as the incorrect disposal of unused medical products. The main pathway of pharmaceuticals into the aquatic environment, according to the collected data, is via wastewater treatment plants (WWTPs). By therapeutic groups, the highest loads were estimated to be for cardiovascular agents, followed by central nervous system agents and anti-inflammatories and analgesics.

In the Baltic Sea environment, the most frequently detected substances belonged to the therapeutic groups of cardiovascular and central nervous system agents, anti-inflammatory and analgesics and a metabolic agent. The most frequently detected pharmaceutical substances were primidone (51 of 51 samples), clofibric acid (83 of 128 samples) and carbamazepine (135 of 220 samples). In biota, the largest number of pharmaceuticals and the highest concentrations were found in blue mussels.

Although the reported data provide an overview of the magnitude of inputs of several pharmaceutical substances to the Baltic Sea, and their concentrations in the marine environment, there are shortcomings in the data that need to be addressed in future studies. More data from the whole region are needed for example on consumption of pharmaceuticals, concentrations of pharmaceuticals in WWTPs and in rivers, the occurrence and fate of metabolites, concentrations of pharmaceuticals in sewage sludge and soil, data on veterinary pharmaceuticals and sensitivity of analytical methods used for measuring concentrations.

The ToR of the CG PHARMA group includes such activity as elaboration of suggestions on prioritization of pharmaceutical substances against the risk they pose to the environment with the view to include them into the HELCOM priority list. The list of the Correspondence Group's tasks also includes further development of HELCOM indicators on pharmaceuticals.

Action requested

The Meeting is invited to discuss and provide initial thoughts on the use of other pharmaceutical substances as HELCOM indicators based on findings of the HELCOM Status report on pharmaceuticals, EU regulations and other available information on emerging pollutants.