Why use outcome based surveillance?

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Outcome based surveillance is based on predefined criteria and objectives, and allows flexible approaches in surveillance to be adopted in order to achieve the desired result. Here, we present a comparison of surveillance based on sampling high risk groups and traditional surveillance based on random sampling.

Due to increasing demand for more cost-effective surveillance programmes and in order to comply with requirements in the European Council Directive 2006/88/EC, outcome-based surveillance has been applied to a recently implemented programme that aims to document freedom from viral haemorrhagic septicaemia (VHS) in farmed Atlantic salmon. In Norway, the surveillance is based on a general health surveillance system in fish farms that has been carried out since the early 1990s, according to a legal framework, by authorised veterinarians and fish health biologists working independently or as industry owned fish health services (FHS). The frequency of FHS visits to the farm is six per year as a minimum, and is based on assessment of clinical findings and the observation of gross pathology, mortality and other relevant production data, and the risk associated with newly introduced fish.

In order to evaluate and compare the efficiency of the surveillance programme, the probability that Norwegian farmed salmonids are free from VHS was analysed using a stochastic scenario tree model. The model estimates of within-farm sensitivity, surveillance system component sensitivity, and probability of freedom indicated a high capability for detection VHS in this system, and a probability of freedom from VHS which is comparable to other more costly systems.

The outcome based approach shows that the recently implemented programme is more cost-effective compared to the former surveillance programme, as the number of samples to be tested at the laboratory is reduced for an outcome that provides a similar level of confidence. However, using an outcome-based approach requires a model to evaluate the effectiveness of the programme and is challenging when it comes to practical implementation. The possible generic use of this surveillance approach is discussed in order to facilitate similar cost-effective strategies.