16. Reporting of results

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16. Reporting of results

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16.1 How to correctly report laboratory results

The laboratory is responsible for ensuring that the customer receives the results of laboratory testing correctly, completely, unambiguously, and objectively and timely (AAVLD, 2018). The length of time for laboratories to complete analyses varies. Samples sent to the diagnostic laboratory should have necropsy and basic parasitology results within 24 hours after receipt of the fish. Usually, the results of bacterial isolation and sensitivity testing are completed within 48 to 96 hours in case of bacteria with normal growth patterns. For fastidious bacteria, the time required to produce the report should be prolonged accordingly (Adams and Thompson, 2011). Virological analysis using cell culture inoculation and identification of viruses as well as histopathology may take up to two weeks or more. All mentioned methods involve isolation and cultivation of pathogens from diseased specimens followed by identification. Immunological methods may be used either for identification of the cultured pathogens or for the direct identification of the pathogens in infected tissues. Both direct and indirect fluorescent antibody techniques (FAT and IFAT) are simple methods that can provide the result within several hours. However, diagnostics based on molecular methods are becoming a must as they are more sensitive and specific and provide rapid results. They are useful for the detection of fastidious microorganisms and comprise valuable tools in epidemiological studies. In addition, these techniques are affordable and are becoming cheaper all the time.

When creating the reporting system, the laboratory should be able to prepare the reports at different levels and consider the best way to communicate the results at these levels. The results of the laboratory analysis should be reported clearly and the reports should be simple and easy to understand and targeted to the user. When reporting surveillance results, the laboratory should report results to every party participating in the surveillance as well as those who may need them.

The recording system applied in the laboratory is the prerequisite for correct reporting and transmission of the results to the farmer/client. Moreover, as stated in the introduction, the diagnostic procedure begins with sample selection and collection in the field and continues through sample preparation for shipping, shipment, and receipt of the samples by the laboratory, recording and processing it for diagnosis. All these steps that may influence the result of the diagnostic procedure should be described in the report. Each report should contain the date of sampling, basic environmental and culture conditions during sampling (if relevant for the testing), the shipping condition and the condition of the sample at delivery. The short description of the diagnostic procedures employed for the disease agent determination is followed by the results/diagnosis and any comments.

However, regardless of the intended purpose of the test, a complete and transparent reporting of the steps in the diagnostic procedure and a reference to testing accuracy are essential for the readers to evaluate the validity of the tests as well and to assess the possibility of biases in diagnostic sensitivity and specificity (OIE, 2019).

Each analytical report should consist of the elements quoted in Table 16.1.

Table 16.1. Components of the report on the laboratory results

Mandatory	Optional
A title Name and address of the laboratory Identification of the sample Name and address of the customer Identification of the sample	
Remark on the sampling procedure used by the laboratory or by the client if it is relevant to the quality of the results	*Date of sampling, sample origin which includes the sampling site and the culture unit, reference of sampling plan used if any, details of environmental and culture condition during the sampling, if relevant to the results of testing, identification of the sampling procedure*
Date of the receipt of the sample Evaluation of sample quality upon reception Identification of the test methods employed Date of the testing with start and completion, where it is relevant to the quality of the test The results of the test	
Where appropriate and necessary, interpretation of the test results and opinions	*The basis upon which the opinion and interpretation have been made; in that case, the rationale upon the testing and decision making was performed; presumptive, definitive tests, screening or confirmatory*
The name, function and signature of the person responsible for authorization of the report	

It is important that the reporting format is designed in a manner to include all tests carried out in the process of diagnosis but minimizing the possibility of misinterpretation or misuse. If there is a set of diagnostic procedures with different durations the interim report should be issued to the client, in which case it should be indicated which tests are completed and which are pending. It should be clearly identified as an interim report and upon completion of all tests; a final report should be issued. This final report should contain references to all preceding interim reports.

References

Adams A., Thompson K., 2011. Development of diagnostics for aquaculture: challenges and opportunities. *Journal of Aquaculture Research*, 42, 93-102

OIE, 2019. Manual of Diagnostic Tests for Aquatic Animals. https://www.oie.int/standard-setting/aquatic-manual/access-online/

AAVLD (American Association of Veterinary Laboratory Diagnosticians, Inc.), 2018. Requirements for an Accredited Veterinary Medical Diagnostic Laboratory. AC1, Version 2018-07. 29pp