



Note to the Management Board

EFSA One Health Whole Genome Sequencing (WGS) System

Introduction

This presentation seeks to inform the Management Board about the progress of the activities related to the development of the EFSA's One Health Whole Genome Sequencing (WGS) System in response to the joint mandate from the European Commission to EFSA and ECDC for the implementation of two interoperable systems for the collection and analysis of WGS data of foodborne pathogens from human received by ECDC and non-human isolates received by EFSA. Aim of the EFSA's One Health WGS system is to provide a single collection point and repository of WGS data of isolates from animal/ food and feed samples to be used by EFSA, ECDC and the Member States for the purpose of molecular surveillance and continuous monitoring of foodborne pathogens, and for supporting the rapid detection and investigation of multi-country foodborne events. The food and veterinary users from EU/EEA countries are invited to submit WGS data on a voluntary basis.

1. Main achievements

The technical development of the EFSA's One Health WGS system has been divided in two phases. The first phase includes the deployment of the system fully interoperable with the equivalent ECDC WGS system; this is going to be completed by mid-March 2022. The second phase covers the delivery of services allowing data providers to interact and query the system; it is due by the end of June 2022. The terms of collaboration regarding the management and sharing of molecular typing data of isolates from human, food, feed, animal and the related environment for public health purposes will be specified in a Collaboration Agreement to be signed by EFSA and ECDC.

In relation to the engagement of data providers, two types of users at EU/EEA country level have been defined: 'Country Officer' with coordination tasks at country level, and 'Data Provider' with tasks related to data submission and analysis. Considering the type of data that falls within the remit of the EFSA's Network on Zoonosis Monitoring Data (Zoonoses Network), EFSA suggested the EU/EEA countries to assign the role of the 'Country Officer' to the Reporting officer of Zoonoses Network. The nomination of users is ongoing following the consultation of countries at the Standing Committee on Plants, Animals, Food and Feed section Biological Safety of the Food Chain (PAFF-BSFC) in November 2021 and the communication to the EFSA's Advisory Forum in December 2021.

2. Performance

EFSA and ECDC are performing tests with the scope of verifying the full interoperability between the two WGS systems. The tests performed so far showed that both systems can produce comparable genomic profiles of bacterial isolates, and that the systems are connected through a machine-to-machine protocol, allowing the exchange of data automatically as for design. The interface designed for supporting the different users in interacting with the EFSA WGS system is also currently under testing by the final users. The tests focus in validating all the functionalities designed for supporting the users in the data collection and visualisation.

3. Lessons learnt

EFSA should continuously invest in engaging with EU Member States to encourage an active participation in the WGS data sharing.