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D1.6 – Complementarity Strategy

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National Institute of Public Health

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D1.6 – Complementarity Strategy

Table of Contents

Table of Contents	3
List of Abbreviations	4
List of Figures	4
1. Executive Summary.....	5
2. Project’s Baseline	7
2.1. Description of the Current State of Legislation	8
2.2. Current State of the Laboratory Equipment	11
2.3. State of Technological Infrastructure for Data Sharing	12
2.4. Security, Data Management and Data Storage	12
2.5. Personnel Situation.....	12
2.6. Data Processing.....	13
2.7. Expected Development in Sequencing Field.....	13
2.8. Data Standardization, Procedures, Formats, and Data Quality Control	15
2.9. State-of-the-art Definition of Data Sharing	18
3. Project Phase.....	20
3.1. Data Handling in the Project, Changes During the Project, and Progress Towards Process Automation	20
3.2. Automation, Applications, New Data Visualization Tools.....	21
4. Future Outlook.....	22
4.1. How the Project Will Contribute to Improved Data Handling	22
4.2. How Data Generated in the Project Will be Included in ECDC's Regular Reporting and How and Where Else They Will be Published	23
5. Project’s Context - Genomic Surveillance of Selected Infectious Diseases in the Czech Republic (HERA2CZ)	24

National Institute of Public Health

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D1.6 – Complementarity Strategy

List of Abbreviations

AMR	<i>Antimicrobial Resistance</i>
ARI	<i>Acute Respiratory Infections</i>
ARI/ILI surveillance	<i>Acute Respiratory Infection and Influenza-Like Illness Surveillance National System</i>
CCRE	<i>Carbapenem and/or Colistin Resistant Enterobacterales</i>
CNV	<i>Copy Number Variants</i>
EQA	<i>External Quality Assessment</i>
FWD	<i>Food- And Water-Borne Diseases</i>
GISRS	<i>Global Influenza Surveillance and Response System</i>
GSD	<i>Genetic Sequence Data</i>
ILI	<i>Influenza-Like Illnesses</i>
IVPP	<i>Influenza Viruses with Human Pandemic Potential</i>
MDR	<i>Multidrug Resistant Bacteria</i>
MLST	<i>Multilocus Sequence Typing</i>
MPXV	<i>Monkeypox Viruses</i>
NIPH	<i>National Institute of Public Health</i>
NRLs	<i>National Reference Laboratories</i>
PC	<i>Partnership Contribution</i>
PIP	<i>Pandemic Influenza Preparedness</i>
QC	<i>Quality Control</i>
RSV	<i>Respiratory Syncytial Viruses</i>
RT-PCR	<i>Reverse Transcription Polymerase Chain Reaction</i>
SARI	<i>Severe Acute Respiratory Infections</i>
SMTA2	<i>Standard Material Transfer Agreements</i>
SNP	<i>Single Nucleotide Polymorphism</i>
SV	<i>Structural Variants</i>
WGS	<i>Whole Genome Sequencing</i>
WHE	<i>WHO Health Emergencies Programme</i>

List of Figures

Table 1: Criteria for assessing assembly-level quality, Mbp – Mega base pairs, kb - kilobases 17

1. Executive Summary

The complementarity strategy for sharing sequencing data was designed to explain current situation in data collection, management and sharing practices within the field of genomics at the National Institute of Public Health (NIPH) in the Czech Republic. Primary objective of this institution is to prevent pandemics and promote public health, secondary objectives are to promote research, enhance patient care, and uphold security and ethical standards. This strategy is relevant to HERA2CZ project which fosters technological preparedness of National Reference Laboratories (NRLs), encourages data sharing, and ensures the responsible and transparent utilization of genomic information while remaining in compliance with privacy regulations that ensures patient rights.

The submission of **the Complementarity strategy** (D1.6), coincides with **the Sustainability strategy** (D1.5). These two strategic documents are pivotal in ensuring that the HERA2CZ project's outcomes will not only endure but also remain accessible and operational over the long term. This strategy is also summarising the progress in the field during the project realisation and expected development in near future. For better readability of the strategy, the document was divided into three main parts (i) *Projects' baseline*, describing the initial situation before the project started, (ii) *Project phase*, explaining changes that are underway grace to the project realisation and the last section: (iii) *Future outlook*, that summarises future development expectations

The Complementarity strategy of HERA2CZ outlines the following aspects:

Projects' Baseline:

- **Legislative Background** - Explores the existing national and international legal framework relevant to HERA2CZ project.
- **Laboratory Equipment** – Assess the disponible relevant laboratory equipment at the beginning of the HERA2CZ project.
- **Technological Infrastructure for Data Sharing** - Describes the disponible relevant IT equipment at the beginning of the HERA2CZ project.
- **Security and Data Storage** – Describes the data storing techniques before the project's start.
- **Personnel**: Discusses the current situation of personal resources and specialisation needed.
- **Data Processing Procedures**: Outlines the procedures for handling sequencing data, including data processing, and storage.
- **Expected Development**: Provides insights into the anticipated developments and advancements in sequencing technologies, strategies and legislation and/or data management practices.
- **Data Standardization, Procedures, Formats, and Data Quality Control**: Overview of the data formats, procedures, and quality control measures to ensure consistency and reliability in sequencing data.
- **State-of-the-Art of Data Sharing**: definition of the current situation where are data shared and stored on national and international level.

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D1.6 – Complementarity Strategy

Project Phase:

- **Handling of Data Generated in the Project:** Discuss changes during the project realisation and overview the possibilities in process automation.
- **Automation, Applications, New Tools for Data Visualization:** discuss application of new technical features within the HERA2CZ project.

Future Outlook

- **Better Data Management:** Discuss the impact of the project on improvement of the data management.
- **Inclusion of the Data to the ECDC Reporting** – Outlines, how the data generated in the project will be included in ECDC's regular reporting and how and where they will be published.

Upon the completion of the project, the D1.9 - **Sequencing Data Sharing Report** will serve as a comprehensive summary of the progress and achievements realized throughout the project's duration. This report will not only show the progress made but also provide a valuable resource for future efforts in genomics data sharing or to data sharing within the healthcare sector in general.