2024 catalogue of ECDC AURORAE laboratory influenza and SARS-CoV-2 trainings

This catalogue contains all laboratory influenza and SARS-CoV-2 in-person training course and twinning visit trainings which the ECDC is offering through the AURORAE programme in 2024. The training activities are endorsed and funded by the ECDC and conducted through the AURORAE consortium.

Expressions of interest for these training activities are collected through the EU survey tool under the following link:

https://ec.europa.eu/eusurvey/runner/EoI_2024_ECDC_InflSC2_training

The password to access the survey is "Training2024".

The training activities are free-of-charge and accommodation, and travel arrangements will be covered by ECDC through the AURORAE consortium framework contract.

All the trainings are subject to ECDC budget availability. All trainings will be held in English.

Please find here a general description of the AURORAE training program for influenza and SARS-CoV-2 wet and dry laboratory trainings: https://eva.ecdc.europa.eu/course/view.php?id=816

If you have any further questions or remarks, please contact ECDC.Influenza@ecdc.europa.eu

Training target audience:

The target audience of the training programme are professionals with background in microbiology or similar fields. Eligibility criteria include:

- The participants should be or will be involved in the microbiological surveillance of respiratory viruses (e.g. SARS-CoV-2 and/or influenza) and should be able to actively apply skills acquired as part of the training.
- The participants should be part of the European Influenza Surveillance Network (EISN) and/or European COVID-19 surveillance network (ECOVID-Net) or must currently be employed in the public health sector in one of the EU/EEA countries, the Western Balkan (Albania, Kosovo, Montenegro, Serbia, North Macedonia, Bosnia and Herzegovina) or Türkiye.

Training formats:

The training formats include face-to-face training courses (wetlab and drylab) and twinning visits of various durations.

Face-to-face trainings.

- The in-person courses on wet-dry laboratory aspects of respiratory virus surveillance are designed for a specific target audience of ten participants each.

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- Please observe pre-requisites for participation and the expected expertise level for participation to ensure all participants will benefit from an aligned learning experience.

Twinning visits

- One participant or trainer will visit the twinning institute for a tailored training. Therefore, the exact training content will depend on the participant and will be discussed and agreed before the start of the training.
- This training allows for an in-depth focussed training on a selection of specific methods.
- It is expected that participants are already knowledgeable in the respective training content and fulfil the pre-requisites required for each training.
- The participants should use the visits to deepen their knowledge, exchange best-practise, and to be enabled to cascade the training content at their home institutes.

Content

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Face 2 face courses

Course Title: Summer school on respiratory viruses laboratory surveillance methods and reporting	
Format	Face-to-face training for 10 participants
Dates/duration	26 June -02 July 2024 (5 working days summer school incl. weekend)
Location	Hellenic Pasteur Institute, Athens, Greece
Description	Summer school of five-day training on respiratory viruses surveillance laboratory methods and reporting with a focus on influenza. The training will begin on a Wednesday and end on a Tuesday, thereby including a weekend with no training activities but time to network and explore nearby areas of Greece.
Objectives/intended learning outcomes	By the end of this course, the learner will be able to: **Describe and apply** laboratory methods used in the microbiological surveillance of respiratory viruses. The course will cover basic knowledge on the below areas: - multiplex respiratory real-time PCR implementation - detection and typing - subtype/lineage determination for seasonal influenza strains from human specimens - sequencing - basic bioinformatic analysis of influenza virus/ use of bioinformatics tools - clade assignment for seasonal influenza and zoonotic (avian/swine) strains - genetic antiviral resistance determination - phylogenetic analyses - antigenic characterisation - biosafety and quality assurance - validation of molecular assays **Operate** the reporting of results to ECDC TESSy databases and to public databases such as GISAID. This course aims to provide an introductory training on Respiratory viruses and influenza surveillance laboratory methods and reporting. A weekend between course days will allow for more network and other activities.
Target audience	The training is designed for ten participants with beginner-level knowledge who will be actively involved in the microbiological surveillance of influenza and other respiratory viruses. The training is for participants who should have sufficient expertise in relevant laboratory methods and be able to cascade the training at their institute. The training is considered beginner-level.

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Course Title: A practical introduction to NGS data analysis	
Format	In-person course
Dates/duration	13-17 May 2024 (4 working days)
Location	Robert-Koch-Institut, Berlin, Germany
Description	Four day dry-lab course giving a general practical introduction to NGS data analysis with examples of SARS-CoV-2.
Pre-course material	GenEpi-BioTrain - Virtual Training 3: SARS-CoV-2 amplicon sequencing data (europa.eu)
Objectives/intended learning outcomes	By the end of this course, the learner will be able to: **Understand and explain** the theory of SARS-CoV-2 NGS. **Execute** bioinformatic analyses using Ugene and Conda environment including: - consensus sequence generation - quality assessment - genotypic assignment of Pangolin/Nextclade lineages - genotypic assessment of antiviral resistance - phylogenetic analyses **Operate** the reporting of results to ECDC TESSy databases and submitting data to public databases such as GISAID or the COVID-19 data portal.
Target audience	This course is designed for participants with no or little experience in analysing NGS data. Previous knowledge of Linux and bioinformatics is not required. Participants should have fundamental understanding of molecular biology and basic knowledge in NGS theory and background. The training is considered beginner level. Workstations (laptops) will be provided during the training.

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Course Title: Wet-/Dry-lab influenza virus NGS course	
Format	In-person course
Dates/duration	1 – 4 October 2024 (4 working days)
Location	Aristotle University of Thessaloniki, Thessaloniki, Greece
Description	Four-day wet-/dry-lab course
Objectives/intended learning outcomes	By the end of this course, the learner will be able to: **Apply** laboratory methods for influenza virus NGS from sample to sequence (Nanopore, Ion Torrent) **Execute** bioinformatic analyses including - phylogenetic analyses - genotypic assignment of influenza clades of seasonal and zoonotic influenza (from human specimens) - genotypic assessment of antiviral resistance **Operate** the reporting of results to ECDC TESSy databases and submitting data to public databases such as GISAID.
Target audience	This course is designed for staff with prior knowledge and experience of standard laboratory techniques such as PCR and understanding of NGS technologies and beginner/advanced sequence analysis and manipulation skills. The training is considered advanced to expert level.

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Course Title: Influenza laboratory methods and reporting	
Format	In-person course
Dates/duration	4–7 June 2024 (4 working days)
Location	Aristotle University of Thessaloniki, Thessaloniki, Greece
Description	Four day wet-lab course on laboratory methods used in the microbiological surveillance of influenza virus.
Objectives/intended learning outcomes	By the end of this course, the learner will be able to: **Apply** laboratory methods used in the microbiological surveillance of influenza virus including - Isolation (cell culture and on embryonated eggs); - Antigenic characterisation (HA) (Hemagglutinin inhibition assay, HAI); - Phenotypic antiviral resistance assessment (neuraminidase inhibition NAI); **Operate** the reporting of results to TESSy.
Target audience	This course is designed for laboratory staff with prior knowledge and experience of standard laboratory techniques such as PCR, cell culture, and handling of infectious materials. The training is considered advanced to expert level.

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Course Title: Detection and typing of seasonal and zoonotic influenza	
Format	In-person course
Dates/duration	December 2024 (4 working days)
Location	Robert-Koch-Institut, Berlin, Germany
Description	Four-day wet-lab course
Objectives/intended learning outcomes	By the end of this course, the learner will be able to: **Understand and apply** laboratory methods used in the microbiological surveillance of influenza virus for the detection and typing (subtype/lineage determination) of seasonal and zoonotic influenza from human specimens. **Understand and explain** the concept of respiratory virus multiplex assays to detect at least influenza, SARS-CoV-2 and RSV. **Operate** the reporting of results to TESSy.
Target audience	This course is designed for laboratory staff with prior knowledge and experience of standard laboratory techniques such as PCR. The training is considered advanced level.

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Twinning visits: 5 days

Course Title: SARS-CoV-2 whole genome sequencing and basic bioinformatics	
Format	In-person course
Dates/duration	5 days. The training is available 4 times.
Location	Laboratoire National De Santé, Dudelange, Luxembourg
Description	Five-day twinning visit on SARS-CoV-2 whole genome sequencing and bioinformatics
Objectives/intended learning outcomes	By the end of this course, the learner will be able to: **Apply** the WGS workflow from sample to sequence and methods for variant determination. **Analyse and visualise** for example variant proportions over time from own data and using online resources such as Nextstrain and others to **assess** global data. **Operate** the reporting of results to ECDC TESSy databases and to public databases such as GISAID or the COVID-19 data portal. **Explain** the purpose and limitations of the Illumina and Nanopore techniques. This twinning visit offers the trainee the possibility to discover two different techniques (Illumina and Nanopore) used in the Microbiology department of the trainer in the national genomic surveillance with the downstream data analysis and reporting. The training will be tailored to the trainer and the trainee's needs.
Target audience	This course is designed for laboratory staff with prior knowledge and experience of standard laboratory techniques such as PCR, Sanger sequencing, and understanding of NGS technologies. The training is for one participant who should have sufficient knowledge on relevant laboratory methods to gain the greatest benefit from this training and be able to cascade the training at their institute. The training is considered advanced to expert level.

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Course Title: Intensive 5-day training influenza surveillance laboratory methods and reporting	
Format	In-person course
Dates/duration	5 days. The training is available 4 times (tentative in April, May, September, October).
Location	Hellenic Pasteur Institute, Athens, Greece
Description	Five-day twinning visit on intensive training influenza surveillance laboratory methods and reporting or Integrated Respiratory virus multiplex qRT-PCR implementation.
Objectives/intended learning outcomes	The exact training content will be agreed with the training participant. By the end of this course, the learner will be able to: **Describe and apply** laboratory methods used in the microbiological surveillance of influenza virus. Depending on training needs, content will cover one of the two below areas with a focus on trainees' needs: 1. Intensive training influenza surveillance laboratory methods and reporting: - detection and typing by real-time PCR - subtype/lineage determination for seasonal influenza and zoonotic (avian/swine) strains from human specimens - validation of molecular assays - genetic antiviral resistance determination - phenotypic antiviral resistance testing - antigenic characterisation - virus microneutralization assay - biosafety and quality assurance 2. Respiratory virus multiplex qRT-PCR implementation and surveillance: - multiplex respiratory real-time PCR implementation - detection and typing - subtype/lineage determination for seasonal influenza and zoonotic (avian/swine) strains from human specimens - biosafety and quality assurance - validation of molecular assays - sequencing - basic bioinformatic analysis of influenza virus/ use of bioinformatics tools - clade assignment for seasonal influenza and zoonotic (avian/swine) strains - phylogenetic analyses **Operate** the reporting of results to ECDC TESSy databases and to public databases such as GISAID. This twinning visit aims to provide an intensive training on influenza surveillance laboratory methods and reporting. The training will be tailored to the trainer and the trainee's needs.
Target audience	The training is for one participant who should have sufficient knowledge on relevant laboratory methods to gain the greatest benefit from this training and be able to cascade the training at their institute. The training is considered advanced to expert level.

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Twinning visits: 2 days

Course Title: Focused 2-day training on influenza surveillance laboratory methods and reporting	
Format	In-person course
Dates/duration	2 days. The training is available 4 times (tentative in April, June, October, November).
Location	Hellenic Pasteur Institute, Athens, Greece
Description	Two-day twinning visit on focused training influenza surveillance laboratory methods and reporting
Objectives/intended learning outcomes	The exact training content will be agreed with the training participant. By the end of this course, the learner will be able to: **Describe and apply** laboratory methods used in the microbiological surveillance of influenza. Depending on training needs, content will cover one of the below areas with a focus on trainees' needs: 1. Molecular assays - multiplex respiratory real-time PCR implementation - detection and typing - subtype/lineage determination for seasonal influenza and zoonotic (avian/swine) strains from human specimens - validation of molecular assays 2. Genetic and Phenotypic Antiviral resistance - genetic antiviral resistance determination - phenotypic antiviral resistance testing 3. Neutralization and Antigenic characterization assays - virus microneutralization assay - antigenic characterisation 4. Bioinformatics Analysis - Basic bioinformatic analysis of influenza virus / use of bioinformatics tools - clade assignment for seasonal influenza and zoonotic (avian/swine) strains - genetic antiviral resistance determination - phylogenetic analyses - reporting of results to public databases such as GISAID **Operate** the reporting of results to ECDC TESSy databases. This twinning visit aims to provide a focused training on certain aspects of influenza surveillance laboratory methods and reporting. The training will be tailored to the trainee's needs.
Target audience	The training is for one participant who should have sufficient knowledge on relevant laboratory methods to gain the greatest benefit from this training and be able to cascade the training at their institute. The training is considered advanced to expert level.

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