

## EURL-PH-AMR

# EU Reference Laboratory for public health on Antimicrobial Resistance

101194806

Deliverable number: D11.1  
Deliverable name: Training plans: Good practice support activities (2026)



Funded by the  
European Union

**Disclaimer:** Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the Health and Digital Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.

## Document overview

|                                        |                                                                                                                         |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Deliverable number                     | 11.1 (year 2)                                                                                                           |
| Deliverable name                       | Training plans: Good practice support activities                                                                        |
| Work package number / name             | 11 / Training                                                                                                           |
| Task number / name                     | Task 11.1 - Provision of training workshops, webinars, simulation exercises (virtual or on-site) (EURGen-Net) (Task 10) |
| Due date                               | M10                                                                                                                     |
| Reviewed and agreed by ECDC            | First review, 15 December 2025<br>Agreed by ECDC, 13 February 2026                                                      |
| Revision (requested by the Commission) | None                                                                                                                    |
| Dissemination level                    | Public                                                                                                                  |
| Authors                                | Valeria Bortolaia, Lina Cavaco, Carmen Espinosa-Gongora, Henrik Hasman, Birgitte Helwich, Ana Rita Rebelo               |
| Lead Beneficiary                       | SSI                                                                                                                     |
| Project website                        | <a href="#">EURL-PH-AMR</a>                                                                                             |

## Contents

|      |                                                                                                              |   |
|------|--------------------------------------------------------------------------------------------------------------|---|
| 1.   | INTRODUCTION.....                                                                                            | 4 |
| 2.   | VIRTUAL WORKSHOP .....                                                                                       | 6 |
| 2.1. | STRATEGIES FOR GENOMIC SURVEILLANCE OF CRE, CRAB AND CRPA IN EUROPEAN COUNTRIES.....                         | 6 |
| 3.   | VIRTUAL OUTBREAK SIMULATION EXERCISE .....                                                                   | 7 |
| 3.1. | HEALTHCARE-ASSOCIATED MULTISPECIES OUTBREAK OF CRE .....                                                     | 7 |
| 4.   | EDUCATIONAL WEBINAR.....                                                                                     | 8 |
| 4.1. | THE IMPACT OF DIFFERENT PHENOTYPIC METHODS ON ANTIMICROBIAL SUSCEPTIBILITY TESTING OF CRE, CRAB AND CRPA ... | 8 |
| 5.   | PILOT SURVEILLANCE EXERCISE.....                                                                             | 9 |
| 5.1. | VISUALISATION OF GENOMIC SURVEILLANCE DATA OF CRE, CRAB OR CRPA .....                                        | 9 |

# 1. Introduction

Prevention, preparedness and response planning and implementation are essential elements for effective monitoring, early warning of and combatting serious cross-border threats to health as stated in Regulation 2022/2371. Each year, the EURL-PH-AMR will carry out training activities that fall under the Article 11 of Regulation 2022/2371.

The aim of the training activities conducted in the context of the EURL-PH-AMR is to strengthen capacity, cooperation and coordination among public health laboratories in Europe to monitor and respond to health threats posed by antimicrobial resistance (AMR).

The purpose of the training activities delivered by EURL-PH-AMR is to equip personnel at public health laboratories with the necessary knowledge and skills to conduct high quality reference services, to improve infection preparedness and to communicate essential health data to national and international health/public health authorities and organisations.

In this document, we outline the training activities to be carried out in 2026 in the context of Deliverable 11.1 for members of EURGen-Net that are eligible for the grant agreement 101194806.

The training activities that will be conducted in 2026 in the context of D11.1 are:

- a virtual workshop to share strategies for genomic surveillance of carbapenem-resistant Enterobacterales (CRE), *Acinetobacter baumannii* (CRAb) and *Pseudomonas aeruginosa* (CRPa) in European countries;
- a virtual simulation exercise (SimEx) to build capacity for detecting and responding to a healthcare-associated multispecies outbreak of CRE;
- an educational webinar to illustrate the impact of different phenotypic methods on antimicrobial susceptibility testing of CRE, CRAb and CRPa;
- a pilot surveillance exercise to strengthen capacity in genomic data visualisation for communication with national and international stakeholders involved in surveillance of carbapenem-resistant bacteria.

These training activities have been devised based on the trainers' experience and feedback by participants in the following training activities:

- EURL-PH-AMR training activities conducted in 2025 (described in D11.1 – Year 1 of GA101194806)
- EURGen-RefLabCap project, a four-year project funded by the European Health and Executive Agency (HaDEA) that ended in December 2024 (Service Contract 2019 74 01: 'Provision of EU networking and support for public health reference laboratory functions for antimicrobial resistance in priority healthcare-associated infections');
- GenEpi-BioTrain programme, a four-year project funded by the European Centre for Disease Prevention and Control (ECDC) that started in 2023 (Framework Contract No ECDC/2022/024: 'Genomic epidemiology and public health bioinformatics trainings in the EU/EEA, the Western Balkans and Turkey').

The experience gained from conducting training activities in these projects, along with participant feedback, has been useful to continuously refine the design of training sessions to better accommodate

varying levels of expertise and different learning styles. In particular, it is clear that participants from public health institutes prefer a 'learn-by-doing' approach based on data from real-life situations. It is also important that the practical sessions include tasks of increasing difficulty, with basic tasks to be finalised by all participants and more advanced tasks to be finalised on a voluntary basis. Finally, we observed that participants are keen to share experiences about what works well and what could be improved in their procedures.

In the following pages, we provide an outline of each training activity. Due to the need to coordinate with several concurrent activities, only an indicative time frame can be provided at this stage. Exact dates will be communicated at a later point, and in any case, no less than three months prior to the event.

Each training activity will include:

- Announcement - made approximately three months before the event - at meetings of the EURGen-Net network, via the [EURL-PH-AMR page of the ECDC Learning Portal](#) and/or via E-mail.
- Detailed agenda:
  - agreed among consortium partners and ECDC.
- Invitation:
  - suitable for identifying the participant(s) within the EURGen-Net network, and including the detailed agenda;
  - sent out as announcement through the [EURL-PH-AMR page of the ECDC Learning Portal](#) approximately one month before the event.
- Training materials (presentation and practical exercises):
  - made available on spaces dedicated to each training activity on the [EURL-PH-AMR page of the ECDC Learning Portal](#), and to be used both for self-learning and for cascading knowledge in the respective countries.

*Of note, the training materials will be in English, and it will be the responsibility of the end users to ensure the accuracy of the information should the materials be translated.*
- Recordings of online activities:
  - made available on spaces dedicated to each training activity on the [EURL-PH-AMR page of the ECDC Learning Portal](#), and to be used both for self-learning and for cascading knowledge in the respective countries.
- Feed-back by the trainees:
  - structured to gather information relevant for planning and/or improving future activities.
- Short report of the training activity:
  - compiled by the organiser of the training activity, and including a short overview of the conducted activity and of the participants;
  - shared with ECDC and HaDEA in the annual progress report.

## 2. Virtual workshop

### 2.1. Strategies for genomic surveillance of CRE, CRAB and CRPa in European countries

#### Objectives

After this virtual workshop, participants will be able to:

- i. become familiar with recommended bioinformatics tools for genomic surveillance of CRE, CRAB and CRPa in European countries;
- ii. reflect on options for improvement of genomic surveillance nationally and internationally.

#### Scope and topics

Currently there is a lack of well-defined bioinformatics strategies to guide genomic surveillance of CRE, CRAB and CRPa in Europe. NRL/NEL use different strategies for genomic investigations. In this virtual workshop, we aim to provide detailed guidance on which bioinformatics methods could be used for this purpose in the EURGen-Net network.

The workshop will include an overview of the methods for bioinformatics analyses used in European laboratories, based on: i) the replies to the EURL-PH-AMR e-survey 'Survey of capacity for NRL core functions and collaborative research activities in EURGen-Net – 2025' (section 3); and ii) historical data from EURGen-RefLabCap genomic proficiency tests.

The workshop will include presentations based on key sections of the D5.5 ('Protocol on bioinformatic tools for EURGen-Net')<sup>1</sup>, focusing on specific bioinformatics strategies that could be used to detect the most relevant genetic determinants for monitoring of CRE, CRAB and CRPa.

Network members will have the opportunity to discuss together in breakout sessions followed by plenum discussion.

#### Invitees

EURGen-Net members eligible for the grant 101194806.

#### Organiser

Technical University of Denmark (DTU).

#### Date and duration

Q3 2026. Two sessions, 1h plus 2h.

---

<sup>1</sup> D5.5 is under preparation at the time of the creation of this training plan. In Q2 2026 the deliverable will be circulated among the EURGen-Net members for consultation, and their input will be considered for the final version. At the time of this workshop the deliverable will have been finalised. This workshop will present an opportunity for EURGen-Net members to directly discuss the bioinformatics strategies described in D5.5 with each other, to share their expertise and/or struggles with the different tools and databases, and to reflect about potential updates or further needs for future versions of the deliverable.

## 3. Virtual outbreak simulation exercise

### 3.1. Healthcare-associated multispecies outbreak of CRE

#### Objectives

After participating in this simulation exercise (SimEx), participants will be able to:

- i. describe mobile genetic elements (MGEs) associated with spread of carbapenem resistance in Enterobacterales;
- ii. determine presence of MGEs in whole-genome sequence (WGS) data;
- iii. perform WGS-based typing of MGEs;
- iv. utilise MGE typing in outbreak analysis and explain how this can lead to expansion of outbreak definitions.

#### Scope and topics

This SimEx will be designed following the guidance by ECDC to plan, coordinate, conduct and evaluate simulation exercises in public health settings ([ECDC, 2021](#)).

In this SimEx, participants will learn how to characterise CRE plasmids using WGS data. They will apply this knowledge to solve a complex outbreak scenario using genomic data and associated metadata. The objective is to assist the national authorities in determining whether the reported cases are epidemiologically linked or represent sporadic occurrences.

#### Invitees

EURGen-Net members eligible for the grant 101194806. The invitees will be encouraged to extend the invitation to colleagues with whom they collaborate during outbreak investigations.

#### Organiser

Statens Serum Institut (SSI).

#### Date and duration

Two online sessions in Q2 or Q4 2026, with self-work in between.

## **4. Educational webinar**

### **4.1. The impact of different phenotypic methods on antimicrobial susceptibility testing of CRE, CRAb and CRPa**

#### Objectives

After this educational webinar, participants will be able to:

- i. understand the impact of using different phenotypic methods on the performance of antimicrobial susceptibility testing (AST) for relevant agents for CRE, CRPa and CRAb;
- ii. reflect on options for improvement of phenotypic AST nationally and internationally.

#### Scope and topics

By providing several External Quality Assessments (EQAs) of public health laboratory performance in AST, DTU has gained substantial experience with the advantages and limitations of different methods across various antimicrobial–bacterial species combinations. This webinar will aim at sharing this experience and present the conclusions regarding the performance of the different methods, focusing on antimicrobials that create known difficulties for AST or for which there are specific EUCAST recommendations.

Additionally, participants will be encouraged to suggest and discuss options for national and international improvement of AST, including recommendations that can potentially be communicated to their national networks of clinical laboratories and other national stakeholders in their countries.

#### Invitees

EURGen-Net members eligible for the grant 101194806.

#### Organiser

Technical University of Denmark (DTU) including collaboration from EUCAST Development Laboratory (EDL).

#### Date and duration

Q3 2026, 2h.



## 5. Pilot surveillance exercise

### 5.1. Visualisation of genomic surveillance data of CRE, CRAB or CRPa

#### Objectives

After participating in the pilot genomic surveillance exercise, participants will be able to:

- i. create tables and figures to visualise genomic data of carbapenem-resistant bacteria for different audiences including clinical microbiologists, public health authorities, and national and international collaborators;
- ii. compare methods for visualisation of genomic data of carbapenem-resistant bacteria among countries;
- iii. choose the most effective strategies for visualisation of genomic data based on target audience.

#### Scope and topics

This pilot exercise aims to strengthen capacity for communication of genomic data to national and international stakeholders involved in surveillance of carbapenem-resistant bacteria.

A protocol describing the exercise will be agreed with ECDC and shared with the invitees. Briefly, invitees will be asked to:

- i. select a dataset of genomic data of CRE, CRAB or CRPa available at the NRL/NEL;
- ii. define the purpose(s) of communicating genomic results to different stakeholders (e.g. clinical microbiologists, public health authorities, national and international collaborators);
- iii. choose and apply the method(s) they consider most suitable for data visualisation to support the communication purposes and audiences identified at point ii;
- iv. present the tables/figures (prepared according to point iii) during an online session organised by the EURL-PH-AMR and including all participants in this pilot exercise;
- v. share the tables/figures with the EURL-PH-AMR for compilation of a report summarising the visualisation strategies employed by the participants to address the different purposes of communication and stakeholders.

This report will be shared with the EURGen-Net members to be used for inspiration in the different countries.

#### Invitees

EURGen-Net members eligible for the grant 101194806.

#### Organiser

Statens Serum Institut (SSI).

#### Date and duration

The pilot surveillance exercise will be launched in Q1 2026. Participating laboratories will be asked to submit results during Q2 2026. A final report to be shared among participants and with ECDC will be produced during Q4 2026.