GenEpi-BioTrain Newsletter #11 - Autumn 2025

Genomic Epidemiology and Public Health Bioinformatics Training in the EU/EEA, the Western Balkan, and Türkiye

Dive into the latest updates with the GenEpi-BioTrain Quarterly Newsletter!

In this issue, we highlight GenEpi-BioTrain's achievements, key moments, and upcoming opportunities in genomic epidemiology and bioinformatics. Our training helps public health professionals, microbiologists, epidemiologists, and bioinformaticians build practical skills and stay at the forefront of this exciting field. Together, we celebrate milestones, reflect on our journey, and share exciting plans for the near future.

On 24 October 2025 we had our yearly information meeting where we shared important information and updates on the upcoming Pathogen Wave 7 with relevant stakeholders from various European countries. In case you missed the meeting, you can find the recording on ECDCs Learning Portal: [Course: GenEpi-BioTrain - Genetic Epidemiology and Bioinformatics Training Programme](#)

1-week exchange visit for bioinformaticians

A one-week exchange visit for five Block 1 trainees working with Tuberculosis D (Pathogen Wave 5) was held at the Research Centre Borstel (RCB) in Germany from 15th to 19th September, 2025.

GenEpi-BioTrain - 1-week Exchange visits - Tuberculosis September 2025

Trainees dived into the world of *Mycobacterium tuberculosis* genomics, gaining hands-on experience with whole-genome sequencing analysis tailored to their individual learning goals. Through lectures, practical sessions, and lab visits, they explored the fundamentals of NGS, analyzed MTB pipelines such as MTBseq and PhyResSE, predicted resistance, studied phylogenetics, and interpreted data—strengthening their skills to track resistance and transmission for informed public health action.

The programme also sparked lively networking and discussions among peers and experts at the RCB, sharing insights on surveillance strategies and the latest epidemiological trends.

Virtual trainings

Join us online! Our virtual training sessions are open to all, no prior experience required.

Register on the ECDC Learning Portal and revisit our training sessions at your convenience—recordings remain available.

The Technical University of Denmark (DTU) hosted the 19th virtual training, "Genomic Tools in Outbreak Investigations - Case Study Cholera Outbreak," on 27th August and 3rd September 2025. Around 599 participants enrolled for this training.

GenEpi-BioTrain - Virtual training 19 - Genomic Tools in Outbreak Investigations - Case Study Cholera Outbreak

During this training, participants explored molecular and genomic data and compared traditional typing methods, such as Pulsed-Field Gel Electrophoresis (PFGE), with modern Whole-Genome Sequencing-Based Typing (WGST).

They honed skills in interpreting phylogenetic relationships, antimicrobial resistance (AMR) and virulence profiles, and applying genomic epidemiology to real-world scenarios. A hands-on simulation exercise, conducted between the two sessions, brought these concepts to life, reinforcing a practical understanding in real-world scenarios.

For detailed information about this workshop and to access the recordings, please visit the ECDC Learning Portal under GenEpi-BioTrain - Virtual training 19 - Genomic Tools in Outbreak Investigations - Case Study Cholera Outbreak

GenEpi-BioTrain - Virtual training 20 - Klebsiella pneumoniae genomic epidemiology and antimicrobial resistance

The Institut Pasteur (IP) hosted the 20th virtual training on "**Klebsiella pneumoniae genomic epidemiology and antimicrobial resistance**" on 9th and 11th September 2025. Around 588 participants enrolled for this training.

The virtual training provided participants with an opportunity to have a closer look at *Klebsiella pneumoniae*, covering its biology, genetic makeup, diversity, and antibiotic resistance. The workshop demonstrated how studying this important pathogen can inform public health actions, including vaccine development strategies. It also introduced Life Identification Number (LIN) codes for tracking strains, examined One Health research, and highlighted international efforts, such as KlebN.

For detailed information and to access the recordings, please visit the ECDC Learning Portal under GenEpi-BioTrain - Virtual training 20 - Klebsiella pneumoniae genomic epidemiology and antimicrobial resistance

GenEpi-BioTrain - Virtual training 21 - Bacterial Strain Taxonomy for Genomic Surveillance

The IP organized the 21st virtual training as well, the topic was **"Bacterial strain Taxonomy for Genomic Surveillance"** and it was held on 22nd and 23rd September 2025 from 9:00 to 12:00 CEST. Around 616 participants enrolled.

This virtual training provided participants with a clear understanding of bacterial classification and naming systems, including MLST, cgMLST, SNP-based taxonomies, LIN codes, and k-mer clustering, as well as an explanation of how these methods support outbreak tracking and global public health. Participants also gained hands-on experience with tools like BIGSdb, EnteroBase, MyKrobe, and PopPUNK, enabling them to apply these approaches in genomic surveillance.

For detailed information and to access the recordings, please visit the ECDC Learning Portal under Course: GenEpi-BioTrain - Virtual training 21 - Bacterial Strain Taxonomy for Genomic Surveillance

Upcoming activities

The planned activities for Q4 in 2025 and Q1 in 2026 are outlined in chronological order.

A 2-week "**Interdisciplinary genomic epidemiology and public health bioinformatics**" workshop will be held at the Statens Serum Institut (SSI) from **27th October** to **7th November 2025**, for 30 Block 2/Pathogen Wave 6 (AMR) trainees. The training will focus on applied genomic epidemiology of methicillin-resistant *Staphylococcus aureus* (MRSA), carbapenem-resistant Enterobacterales (CRE), and *Clostridioides difficile* infections (CDI). The overall objective is to enhance coordination and collaboration among bioinformaticians, epidemiologists, and microbiologists to support public health action. Trainees will gain advanced theoretical and practical expertise in outbreak detection, genomic epidemiology, AMR surveillance, and One Health approaches through lectures, case-based learning, hands-on exercises, and collaborative discussions.

A three-day workshop on **Specific Topics on AMR** will be held at the SSI from **9th** to **11th December 2025** for 10 Block 3/Pathogen Wave 6 trainees. This course is designed to enhance participants' understanding of the roles and responsibilities of bioinformaticians in NGS-based surveillance and outbreak investigations of hospital-acquired infections (HAI) caused by MRSA, CRE and *C. difficile*.

A **virtual information meeting** with all the selected candidates for Pathogen Wave 7 (focusing on One Health approach) will take place in **January 2026** to introduce training activities and answer questions from the trainees.

The fourth edition of "**Bridging the Gaps in Bioinformatics**" workshop will take place at SSI from **23rd February to 6th March 2025** for trainees of block 1 / Pathogen Wave 7 and 8. This popular course provides beginners with a solid foundation in bioinformatics. Participants are introduced to key concepts and gain the skills needed to work independently. With a strong focus on hands-on training, trainees receive practical experience throughout the course, culminating in the creation of a basic pipeline for processing genome assemblies, which equips them with essential bioinformatics skills.

Additional activities within the GenEpi-BioTrain programme will be communicated in due course.