Examples of teaching approaches used in the Train-the-Trainer course on Capacity Building for Genomic Surveillance of AMR in low- and middle income countries

Strategy	Description	Implementation examples
challenge and problem-based tasks	problem solving and decision making exercises	● Use card-based blueprint to order processes and procedures in a typical WGS for AMR surveillance pipeline; ● Use of fictive case scenarios involving training others in genomics aspects.
case studies	use of real cases, as published in the literature	● Identify MDR *Salmonella enterica* subsp. *enterica* serotype Kentucky lineage expansion (Hawkey, Le Hello et al. 2019) ● Investigation of a Brazilian epidemic of *Mycobacterium abscessus* species complex (Everall, Nogueira et al. 2017) ● *Klebsiella pneumoniae* outbreak investigation (Wilson, Khokhar et al. 2018)
historical and chronological presentation of processes	demonstration of lab procedures, visual tours, lab visits, exhibition tour.	● Visit to the sequencing facilities at the Sanger Institute. ● Demonstration of Library Preparation for WGS. ● Demonstration of best practices for Antimicrobial Susceptibility testing
comparative analysis of tools and platforms	presenting alternative ways of achieving the same/similar result	● Comparison of data merging and consolidation techniques: interactively with spreadsheets versus programmatically with R and Python. ● Comparison of different databases and software tools used to determine the AMR phenotype based on genomic data.
project planning and management techniques	considering standards and quality control, constraints and limitations, time management; project planning and constraints [financial, scaling and other]	● Exercise on how to set up a WGS laboratory ● QC assessment of libraries and sequencing
provision of resources	provision of links to resources and portals, quality control standards, virtual and cloud tools, toolkits	● Software tools: ● AMR prediction tools: ARIBA (Hunt, Mather et al. 2017), Pathogen.watch, AMRFinder (Feldgarden, Brover et al. 2019) ● AMR databases: CARD (Alcock, Raphenya et al. 2020), ResFinder (Bortolaia, Kaas et al. 2020) ● Nucleotide archives: Genbank (Sayers, Cavanaugh et al. 2020), European Nucleotide Archive (Leinonen, Akhtar et al. 2011)
analysis and evaluation	Participants' specific contexts consideration and evaluation	● Big picture exercise where participants evaluate their own circumstances.