# 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

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<th>Strategy</th>
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| **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. |