Antimicrobial Resistance Surveillance Task Force (ARSTF):

Workforce Development Training List

Last Updated: 06/27/2025

This document aims to provide training resources for staff engaged in any facet of antimicrobial resistance (AR) surveillance. The ARSTF Workforce Development Workgroup members vetted the training content included in this resource. The formats of these training courses vary and include web-based courses with single or multiple modules, video presentations, reference material, and other types of resources. The goal is to provide sufficient background for new staff members involved at the local or state level in AR surveillance, beginning with an overview of antimicrobials and AR mechanisms. Additional topic areas can be incorporated into training for staff involved in specific aspects of AR surveillance, such as laboratory methods, genomic epidemiology, and informatics.

** When available, descriptions have been pulled directly from the site's training pages for quick reference.*

If you would like to submit any thoughts or questions or would like to submit additional training for consideration, please send an email to the Council of State and Territorial Epidemiologists (CSTE) contact for ARSTF.

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Classifications of Antimicrobial Drugs, Mechanisms of Action, and Pharmacology of Antimicrobials

Focus: This section provides foundational knowledge on antimicrobial drugs, including their classification, mechanisms of action, and pharmacological properties. It equips learners with essential concepts to understand how different antimicrobials work, when and how they are used, and their impact on bacterial targets and the body.

Overview of Antibacterial Medications

Resource Link: Overview of Antibacterial Medications
Published by: Merck Manual
Description: The page introduces antibacterial medications, beginning with factors involved in their selection and use, followed by more detailed descriptions of each of the major classes of antibacterials, including mechanisms of action, pharmacokinetics, indications, contraindications, adverse effects, and dosing. The sections on the individual classes of antibacterials also include links to quizzes on the information covered.
Training Time: Not Applicable (NA)
Cost and Resources: Free
Audience and Experience Level: Introductory for all levels of experience, but with useful information for clinicians on indications, dosing, etc., as described above.
Continuing Education: No Continuing Education (CE) credits available

Mechanisms of Antibacterial Drugs

Resource Link: 10.2 Mechanisms of Antibacterial Drugs – Allied Health Microbiology
Published by: Oregon State University
Description: The page provides an overview of antibacterial medications and includes tables that categorize antibacterials by mode of action, as well as additional tables that further categorize the modes of action by target, drug class, spectrum of activity, and clinical use.
Training Time: NA
Cost and Resources: Free
Audience and Experience Level: Introductory for all levels of experience.
Continuing Education: No CE credits available

Antimicrobial Resistance Learning Site

Resource Link: Pharmacology | Antimicrobial Resistance Learning Site
Published by: University of Minnesota
Description: The page begins with a historical background of antimicrobial drug discovery. Other topics include brief overviews of mechanisms of action, spectrums of activity, drug effects on bacteria, the fate of antimicrobial drugs in the body, and therapeutic vs. non-therapeutic uses.
Training Time: NA
Cost and Resources: Free
Audience and Experience Level: Introductory for all levels of experience.
Continuing Education: No CE credits available

Bacterial Mechanisms for Resisting Antimicrobial Agents

Focus: This section explores how bacteria resist the effects of antimicrobial agents, including the biological mechanisms that enable resistance and how these traits spread. It also addresses the broader public health implications of AR, contributing factors, and efforts to monitor and combat this growing threat.

Antibiotic Stewardship Course: Module 1: Be Antibiotics Aware

Resource Link: Antibiotic Stewardship Course: Module 1: Be Antibiotics Aware: Antibiotics Resistance (Web-based) - WB4539R
Published by: CDC TRAIN
Description: Module 1 of the Centers for Disease Control and Prevention (CDC) Antibiotic Stewardship Course includes information about antibiotic resistance, how antibiotic resistance occurs, and the impact of antibiotic-resistant infections. Includes highlights of antibiotic-resistant pathogens of concern and strategies to combat resistance.
Training Time: 0.75 hours
Cost and Resources: Free
Audience and Experience Level: Introductory course aimed at allied health professionals, epidemiologists, and surveillance staff.
Continuing Education: This course provides Category 1 AMA Physicians Recognition Award™ CME credit (ACCME) for physicians. ACCME – Non-Physician may be used to provide attendees other than MDs, DOs, and MBBSs a certificate that documents their attendance, and indicates that the accredited provider offered Category 1 AMA Physicians Recognition Award™ CME credit for the course or activity.

Antimicrobial Resistance (Part 1)

Resource Link: Antimicrobial Resistance (Part 1)
Published by: Global Health eLearning Center
Description: This video-based course aims to improve the learner's awareness and understanding of the basic principles of AR and the impact AR has not only on individuals but also on society, making it a major public health concern. The second part of the course explains the major factors that contribute to the development and spread of AR and the interventions available to address these factors. This course also discusses antimicrobials and vaccine development, the impact of globalization and societal shifts on AR, and international strategies for containing AR.
Training Time: 2 hours
Cost and Resources: Free
Audience and Experience Level: General public with introductory knowledge of antimicrobial resistance.
Continuing Education: No CE credits available

Antimicrobial Resistance (Part 2)

Resource Link: Antimicrobial Resistance (Part 2)
Published by: Global Health eLearning Center
Description: This video-based course aims to improve the learner's awareness and understanding of the basic principles of AR and the impact AR has not only on individuals but also on society, making it a major public health concern. The second part of the course explains the major factors that contribute to the development and spread of AR and the interventions available to address these factors. This course also discusses antimicrobials and vaccine development, the impact of globalization and societal shifts on AR, and international strategies for containing AR.
Training Time: 3 hours
Cost and Resources: Free
Audience and Experience Level: General public with introductory knowledge of antimicrobial resistance.
Continuing Education: No CE credits available

Animation of Antimicrobial Resistance

Resource Link: Animation of Antimicrobial Resistance
Published by: United States Food and Drug Administration on YouTube
Description: The animations help to illustrate the mechanisms where bacteria develop resistance to antimicrobial agents and then transfer this resistance to susceptible bacterial strains. Definitions (e.g., selection pressure, mechanisms of antimicrobial resistance, mutation, destruction/inactivation, efflux, genetic transfer, conjugation, transformation, transduction) are given throughout the presentation with corresponding animations.
Training Time: 9 minutes
Cost and Resources: Free
Audience and Experience Level: Introductory - Intermediate level course for those with a basic understanding of bacterial cell structure and functions.
Continuing Education: No CE credits available

Antimicrobial Resistance Learning Site

Resource Link: Antimicrobial Resistance Learning Site
Published by: University of Minnesota
Description: The Microbiology Module addresses the intricate science behind the antibiotic resistance phenomenon. It explains what takes place within the bacterial cell to enable antimicrobial resistance and how it can be detected and measured. These basic principles should be a useful resource for client education and reinforcing the veterinarian's role in protecting the public's health.
Training Time: 2 hours
Cost and Resources: Free
Audience and Experience Level: The course is intended for veterinary students, veterinarians, industry professionals, researchers, microbiologists, epidemiologists, and animal scientists.
Continuing Education: Veterinary continuing education credit is available for most modules.

About Antimicrobial Resistance

Resource link: Antimicrobial Resistance | About Antimicrobial Resistance
Published by: CDC
Description: The pages have the definition of germs and antimicrobials (e.g., germs, pathogens, antimicrobials, bacteria, antibiotics, fungi, antifungals), explain how antibiotic and antifungal use affects resistance, explain the spread of germs and resistance mechanisms and contains fact sheets (how resistance spreads, how bacteria and fungi fight back against antibiotics, how resistance moves directly germ to germ, select germs showing resistance over time). The page contains a table with resistance mechanisms and descriptions with examples.
Training Time: NA
Cost and Resources: Free
Audience and Experience Level: Introductory for all levels of experience.
Continuing Education: No CE credits available

Antimicrobial Resistance Threats in the United States, 2021-2022

Resource Link: Antimicrobial Resistance Threats in the United States, 2021-2022 | Antimicrobial Resistance
Published by: CDC
Description: The page contains the 2021-2022 CDC report on Antibiotic Resistance Threats in the United States. The report is intended to serve as a reference for information on antimicrobial resistance, provide U.S. antimicrobial resistance burden estimates for human health, and highlight emerging areas of concern and additional actions needed. The page contains a list of bacteria and fungi in the report and has downloadable data on CDC's urgent threats, serious threats, concerning threats, and watch list.
Training Time: NA
Cost and Resources: Free
Audience and Experience Level: Introductory for all levels of experience.
Continuing Education: No CE credits available

Principles of Antimicrobial Stewardship

Focus: The following training covers information on antimicrobial use and the importance of incorporating antimicrobial stewardship to minimize the development or further transmission of antimicrobial-resistant organisms in clinical settings. They also cover how surveillance is incorporated to monitor progress and trends.

Centers for Disease Control and Prevention's (CDC) Antibiotic Stewardship Courses

Resource Link: CDC's Antibiotic Stewardship Courses
Published by: CDC TRAIN
Description: Interactive web-based activity designed to help clinicians optimize antibiotic use to combat antibiotic resistance and improve healthcare quality and patient safety. Modules can be taken in any order.
Training Time: Varies for different modules
Cost and Resources: Free
Audience and Experience Level: Physicians, Physician Assistants, Advanced Practice Nurses, Registered Nurses, Certified Health Educators, Program Managers, Other Health Educators. The audience will need to have background knowledge in microbiology, infectious disease, and primary care, as a physician, nurse practitioner, physician assistant, or clinical pharmacist would have.
Continuing Education: Each module offers various amounts of training CE's

Antimicrobial Stewardship: Improving Clinical Outcomes by Optimization of Antibiotic Practices

Resource link: Antimicrobial Stewardship: Improving Clinical Outcomes By Optimization of Antibiotic Practices
Published by: Stanford School of Medicine
Description: This video-based course will introduce learners to the basic principles of appropriate antibiotic use, demonstrate how to apply these principles to managing common infections, and outline how to develop and maintain an antimicrobial stewardship program. We will offer several illustrative cases, recognizable to the practicing physician in his or her practice, to engage learners in the thought processes that lead to optimal decision-making, improved outcomes of individual patients, and harm reduction vis-à-vis the bacterial ecology. The course will also explore strategies to implement principles of antimicrobial stewardship in your practice and at a program level.
Training Time: 7 hours
Cost and Resources: Free
Audience and Experience Level: This course will offer a practical approach to prescribing antibiotic therapy and developing antimicrobial stewardship to physicians and pharmacists across all specialties and settings.
Continuing Education: Stanford University School of Medicine has approved this activity for AMA PRA Category 1 Credit(s)™. CME Credits Offered: 7.00

Nursing Home Infection Preventionist Training Course | Module 14 - 15 Antibiotic Stewardship in Nursing Homes

Resource link: Nursing Home Infection Preventionist Training Course - WB4448R | Module 14 -15 Antibiotic Stewardship in Nursing Homes
Published by: CDC TRAIN
Description: This video-based course will provide infection prevention and control (IPC) training for individuals responsible for IPC programs in nursing homes to effectively implement their programs and ensure adherence to recommended practices by front-line staff. The course will include information about the core activities of an effective IPC program, with a detailed explanation of recommended IPC practices to prevent pathogen transmission and reduce healthcare-associated infections and antibiotic resistance in nursing homes.

Module 14 – Antibiotic Stewardship in Nursing Homes.
Module 15 – Infection Prevention and Antibiotic Stewardship Considerations During Care Transitions

Training Time: 2 hours
Cost and Resources: Free
Audience and Experience Level: The audience will need to have background knowledge in types of care provided in a nursing home, as a professional (e.g., physician, nurse) working in a nursing home would have.
Continuing Education: Each module offers various amounts of training CE's

One Health Trainings

Focus: The following material covers antimicrobial resistance related to human, animal, and environmental interactions. Through a One Health lens, learners will explore the roles of agriculture, veterinary medicine, and public health stewardship efforts and gain access to tools, guidance, and expert perspectives that support a collaborative response to this challenge.

Understanding Antimicrobial Resistance in Food and Agriculture

Resource link: Understanding antimicrobial resistance in food and agriculture
Published by: Food and Agriculture Organization of the United Nations
Description: This course offers an overview of antimicrobial resistance as a global threat to human, animal, and environmental health. It explains the role of the food and agriculture sector and the impact of AR on agrifood systems. It also describes how the Food and Agriculture Organization of the United Nations (FAO) is contributing to increased awareness and engagement of all stakeholders in the food and agriculture sector to tackle AR.
Training Time: 2 hours, 50 minutes
Cost and Resources: Free
Audience and Experience Level: Epidemiologists, laboratory personnel, and food safety officers.
Continuing Education: Digital badges, also called digital credentials or micro-credentials, are online visual representations of skills and competencies earned through learning. Several courses in the FAO eLearning Academy are linked to a final certification test, aimed at verifying the acquisition of skills and competencies associated with those eLearning courses. Certification is granted through the Digital Badges system.

Antimicrobial Resistance (AMR) Exchange: Hooves, Paws, or Feet, Examining AMR in Animals

Resource link: Antimicrobial Resistance (AMR) Exchange: Hooves, Paws, or Feet, Examining AMR in Animals
Published by: CDC on YouTube
Description: CDC's Division of Foodborne, Waterborne, and Environmental Diseases' activity Lead of Enteric Zoonoses, Megin Nichols, spoke with leading AMR experts from The Ohio State University, National Institute of Antimicrobial Resistance Research and Education, and EpiX Analytics to share their expertise on antibiotic resistance as it relates to animals. Discussions included: Implementing antimicrobial stewardship programs and their effectiveness in animals using a One Health approach; How antibiotic resistance impacts animal health; How engaging pet owners and livestock producers can improve antibiotic stewardship and prescribing practices to ensure these life-saving drugs are available for future generations of people and animals.
Training Time: 1.5 hours
Cost and Resources: Free
Audience and Experience Level: Healthcare providers, other allied health professionals, and epidemiologists. The audience will need to have at least some background knowledge in microbiology and infectious diseases.
Continuing Education: No CE credits available

Understanding Antibiotic Resistance in Water

Resource link: Understanding Antibiotic Resistance in Water
Published by: CDC on YouTube
Description: CDC's Antimicrobial Resistance Exchange held a webinar exploring the global threat of antimicrobial resistance and the urgent action needed to stop its spread. Experts from CDC, The Ohio State University, and the University of Gothenburg are working to track antimicrobial resistance in water and understand its impact on public health, while taking action to address this potential threat. Antimicrobial resistant germs and their genes can contaminate streams, rivers, lakes, and oceans from discharge that flows from hospitals, farms, or sewage systems. Even properly functioning wastewater treatment systems may not fully remove resistant germs and their genes. However, the magnitude of this risk to human health is still not fully understood.
Training Time: 1.5 hours
Cost and Resources: Free
Audience and Experience Level: Healthcare providers, other allied health professionals, and epidemiologists.
Continuing Education: No CE credits available

Antimicrobial Resistance

Resource link: Antimicrobial resistance
Published by: World Organisation for Animal Health
Description: Information and resources on antimicrobial resistance from a One Health perspective, including: Guidance for professionals; Tools and resources.
Training Time: NA
Cost and Resources: Free
Audience and Experience Level: Health care providers, pharmacists, nurses, infection preventionists, dental professionals, public health professionals, health educators.
Continuing Education: No CE credits available

Minnesota One Health Antibiotic Stewardship Collaborative

Resource link: Minnesota One Health Antibiotic Stewardship Collaborative (MOHASC)
Published by: Minnesota Department of Health
Description: A broad range of resources on One Health-oriented topics related to antibiotic stewardship, including links to: news and events, conferences and presentations, and print materials
Training Time: NA
Cost and Resources: Free
Audience and Experience Level: Health care providers, pharmacists, nurses, infection preventionists, dental professionals, public health professionals, health educators.
Continuing Education: No CE credits available

Laboratory Methods for Detecting and Measuring Antimicrobial Resistance

Focus: This section introduces laboratory techniques for detecting and measuring antimicrobial resistance, from foundational susceptibility testing methods to advanced molecular diagnostics. It emphasizes accurate interpretation, communication of results, and the evolving role of clinical and public health labs in identifying resistant organisms and guiding treatment decisions.

Antimicrobial Resistance - Theory and Methods

Resource link: Antimicrobial resistance - theory and methods
Published by: Technical University of Denmark through the Coursera platform
Description: This course covers topics related to antimicrobial resistance, including the emergence and spread of resistance. It also provides training in methods used for antimicrobial susceptibility testing (AST), including disk diffusion testing, broth dilution, and agar dilution methods. Includes training on analysis and interpretation of AST results, including discussion of breakpoints and cut-offs. Provides training on correlating phenotypic results with genotypic results using molecular techniques for the detection of resistance mechanisms.
Training Time: 9 Hours
Cost and Resources: Free
Audience and Experience Level: This is an intermediate-level course geared toward medical technologists and clinical microbiologists working within a microbiology lab setting, as well as other healthcare professionals interested in learning more about antimicrobial susceptibility testing methods and interpretation of results. While the content is introductory, some prior basic knowledge of antimicrobial susceptibility testing principles may be helpful.
Continuing Education: No CE credits available

Performance Standards for Antimicrobial Susceptibility Testing

Resource link: Using M100 Online Learning | Performance Standards for Antimicrobial Susceptibility Testing
Published by: Clinical Laboratory Standards Institute (CLSI)
Description: This online course provides more information on CLSI and its role in AST and provides information on how to use the content within the M100 document to guide AST and reporting decisions, including selection of antimicrobial agents for testing and reporting, interpretation of zone diameter and minimal inhibitory concentration (MIC) measurements, and choosing organisms for quality control of disk diffusion and MIC tests.
Training Time: 1.5 hours
Cost and Resources: Free
Audience and Experience Level: This course is geared more toward medical technologists and clinical microbiologists in a microbiology lab setting. Infectious disease specialists, pharmacists, and other healthcare professionals interested in learning more about antimicrobial susceptibility testing standards would also benefit. This is not an introductory course in antimicrobial susceptibility testing. It assumes some background knowledge and understanding of antimicrobial susceptibility testing principles.
Continuing Education: Earn up to 1.5 P.A.C.E. CE Credits.

Antimicrobial Stewardship: Partnerships between the Lab, Physicians and Pharmacy

Resource link: Antimicrobial Stewardship: Partnerships between the Lab, Physicians and Pharmacy
Published by: American Society for Microbiology
Description: This webinar series goes over the core concepts for a successful antimicrobial stewardship program. Topics covered include: Mechanisms of Antimicrobial Resistance and Approaches to Susceptibility Testing; Pharmacokinetics and Pharmacodynamics of Antibacterials: AUC, MIC and Magic Math to Optimize Antibiotic Dosing; Optimizing Use of Clinical Microbiology Laboratory Data to Address Antimicrobial Stewardship Initiative; The Role of Laboratory Test Stewardship on Antimicrobial Use.
Training Time: 1 Hour per webinar
Cost and Resources: $20-$170
Audience and Experience Level: This is an intermediate-level course geared toward laboratory personnel, Infectious Disease physicians, and Infectious Disease pharmacists.
Continuing Education: Each presentation is approved for 1.0 P.A.C.E.® credit. ASM is approved as a provider of continuing education programs in the clinical laboratory sciences by the ASCLS P.A.C.E.® Program. All presentations are recognized by the California Department of Health and the Florida Department of Health and qualify for California and Florida CE credit toward license renewal.

Best Practices for Identification of Carbapenem Resistant *Pseudomonas aeruginosa*: An American Society for Microbiology (ASM) - Association of Public Health Laboratories (APHL) - CDC Sponsored Training Webinar

Resource link: Best Practices for Identification of Carbapenem Resistant Pseudomonas aeruginosa: An ASM- APHL-CDC Sponsored Training Webinar
Published by: ASM
Description: This webinar talks about the different types of carbapenemases seen in *Pseudomonas aeruginosa* and discusses best practices for the identification of carbapenem-resistant *Pseudomonas aeruginosa* (CRPA) in the lab. It also emphasizes the importance of communication regarding antimicrobial test methods and results between the clinical lab and public health labs.
Training Time: 1 hour
Cost and Resources: Free
Audience and Experience Level: This intermediate-level course is geared toward microbiologists and other healthcare and public health professionals interested in learning more about carbapenem-resistant organisms, particularly CRPA.
Continuing Education: No CE credits available

Screening Implementation Guide: Implementation of Carbapenemase-Producing Organism Colonization Screening

Resource link: Screening Implementation Guide: Implementation of Carbapenemase-Producing Organism (CPO) Colonization Screening
Published by: APHL and ASM
Description: This document is intended to provide general guidance to laboratories interested in performing CPO colonization screening.
Training Time: NA
Cost and Resources: Free
Audience and Experience Level: The guidance is not only directed at clinical laboratories working to establish CPO colonization screening capabilities but may also benefit those public health laboratories not yet performing this testing function and considering implementation.
Continuing Education: No CE credits available

Screening for Resistant Healthcare-Associated Infections: Colonization Screening for Healthcare Facilities

Resource link: Screening for Resistant Healthcare-Associated Infections: Colonization Screening for Healthcare Facilities
Published by: APHL
Description: In this four-part series individuals will learn the importance of screening for two groups of multidrug-resistant organisms, carbapenemase-producing organisms and *Candida auris*.
Training Time: 2 hours
Cost and Resources: Free
Audience and Experience Level: Staff at healthcare facilities including but not limited to long term and acute care centers and skilled nursing facilities who need to perform colonization screening in their facility. It is also intended to serve as a training tool and resource for public health agencies, laboratories and HAI/AR Coordinators to improve colonization screening in their jurisdiction.
Continuing Education: No CE credits available

Candida auris Training Series

Resource link: *Candida auris* Training Series
Published by: APHL
Description: This training series is intended to provide all necessary background and content for any laboratory intending to implement *Candida auris* screening. Experts will provide detailed information on culture methods and validation, PCR and validation, important safety considerations, pre-analytical factors to consider, and proper reporting of results.
Training Time: 6 hours
Cost and Resources: Free
Audience and Experience Level: This training series is designed for laboratory professionals, laboratory management, and technical personnel.
Continuing Education: No CE credits available.

Clinical and Public Health Laboratory Perspectives on Antifungal Resistance

Resource link: Clinical and Public Health Laboratory Perspectives on Antifungal Resistance
Published by: APHL
Description: The goal of this seminar is to provide an understanding of the current issues in antifungal resistance. From the public health side this includes the recent emergence of antifungal resistance organisms such as *Candida auris*, azole-resistant *Candida parapsilosis*, and azole-resistant *Aspergillus fumigatus*. From the clinical side, this includes understanding currently available antifungal susceptibility testing (AFST) approaches, what clinical situations warrant susceptibility testing, and when testing can provide actionable information to drive patient care.
Training Time: 1 hour
Cost and Resources: Free
Audience and Experience Level: This program is intended for public health and/or clinical laboratory scientists who are interested in learning more about antifungal susceptibility testing methods.
Continuing Education: No CE credits available

Antimicrobial Susceptibility Testing

Resource Link: Antimicrobial Susceptibility Testing
Published by: Association for Diagnostics and Laboratory Medicine (formerly AACC) on YouTube
Description: The video offers an overview of microbial pathogens, rationale for antimicrobial susceptibility testing, routine laboratory testing methods, and further details in the testing process.
Training Time: 17 minutes
Cost and Resources: Free
Audience and Experience Level: General
Continuing Education: No CE credits available

Packing and Shipping Dangerous Goods

Resource Link: Packing and Shipping Dangerous Goods: What the Laboratory Staff Must Know
Published by: CDC / OneLab REACH
Description: The goal of this course is to provide training on packing and shipping Division 6.2 infectious substances and dry ice.
Training Time: 2 hours
Cost and Resources: Free
Audience and Experience Level: This basic-level course is intended for public health and clinical laboratory staff involved in any step of the packing or transport process of patient samples or cultures.
Continuing Education: This course is approved for two contact hours of P.A.C.E.® credit. This course provides a certificate of completion but does not provide certification for the transport of dangerous goods. Individuals can only be certified by their employer.

Tour a Fully-Automated Clinical Microbiology Lab

Resource link: Tour a Fully-Automated Clinical Microbiology Lab
Published by: ASM on YouTube
Description: This 10-minute video that provides a tour of an automated microbiology lab and gives an overview of how microbiology cultures are set up from specimens received in the lab, how cultures are evaluated, how bacterial identification is performed using MALDI-TOF technology and antimicrobial susceptibility testing is set up on the automated Phoenix AST system and broth microdilution panels.
Training Time: 10 minutes
Cost and Resources: Free
Audience and Experience Level: This introductory video provides a broad overview of testing performed within an automated clinical microbiology lab.
Continuing Education: No CE credits available

Public Health Informatics for Antimicrobial Resistance

Focus: This section focuses on understanding key informatics concepts, including the definitions and applications of Logical Observation Identifiers, Names, and Codes (LOINC) and Systematized Nomenclature of Medicine (SNOMED) codes. It also covers evaluating, developing, and supporting information systems that address public health needs, with an emphasis on interoperability, security, and confidentiality in handling health data.

Introduction to Public Health Informatics

Resource link: Introduction to Public Health Informatics | Public Health 101 Series
Published by: CDC
Description: This course provides an overview of the importance of public health informatics and its role in public health. The training covers the following topics: the definition of informatics, key components of public health informatics, the role of the informatician in public health practice, and the difference between public health informatics and information technology.
Training Time: 1 hour
Cost and Resources: Free
Audience and Experience Level: The series can benefit the following groups: Those who work in public health but who have not had formal training in a particular core area; Those who have had public health education and would like a refresher; Students or others interested in pursuing careers in public health; Health educators and instructors responsible for the training and professional development of the public health workforce.
Continuing Education: No CE credits available

Systemized Nomenclature for Medicine - Clinical Terminology (SNOMED CT) Foundation Course

Resource link: SNOMED CT Foundation Course
Published by: SNOMED International
Description: The SNOMED CT Foundation Course introduces a broad range of SNOMED CT-related topics, including the why, what, and how of SNOMED CT.
Training Time: Minimum of 7 hours to be completed over 4 months
Cost and Resources: Free
Audience and Experience Level: General audience
Continuing Education: A certification of completion is available for those who complete all modules and the final assessment within the allocated 4-month period.

Health Level-7 (HL7) Fundamentals Course

Resource link: HL7 Fundamentals Course
Published by: HL7 International
Description: This asynchronous course is ideal for those new to HL7 and its family of standards including Version 2 (V2), Clinical Document Architecture (CDA®) and Fast Healthcare Interoperability Resources (FHIR®).
Training Time: This is a 12-week workshop that allows you to work at your own pace. It includes weekly assignments, but no live lectures to attend. Plan on spending 5 to 7 hours per week.
Cost and Resources: From $420 (student) - $790 (non-member); see link to 2025 brochure with more details here.
Audience and Experience Level: Newcomers to HL7 and those who wish to gain an overall technical experience of HL7 standards.
Continuing Education: You will receive a certificate at the end of the course if you have completed all the given assignments in the allotted time.

Antimicrobial Use and Resistance (AUR) Training Video Series

Resource link: AUR Training video series
Published by: CDC
Description: These webinars provide an overview of how AU and AR data are reported to the CDC's NHSN using standardized definitions. Data are sent to NHSN electronically using CDA files.
Training Time: 1 hour per training
Cost and Resources: Free
Audience and Experience Level: This is a basic level course geared toward infection preventionists, Infectious Diseases pharmacists, and Infectious Diseases physicians.
Continuing Education: Each module offers various amounts of training CE's

Videos – Logical Observation Identifiers, Names, and Codes (LOINC)

Resource link: Videos – LOINC
Published by: Regenstrief Institute
Description: The expanding video series will help you to learn all you need to know about LOINC. From the basics to advanced topics, these videos should give you the insight you need. "Get Started" is a high-level overview of the code system. The Introduction to LOINC video covers the purpose and scope of LOINC, the LOINC concept model, additional term attributes, and resources available for implementing LOINC.
Training Time: 1 hour 15 minutes
Cost and Resources: Free
Audience and Experience Level: This is a basic level course geared toward anyone using LOINC.
Continuing Education: No CE credits available

LOINC - Getting Started

Resource Link: LOINC - Getting Started
Published by: Regenstrief Institute
Description: This guide will introduce you to the basics of LOINC and help you hit the ground running.
Training Time: NA
Cost and Resources: Free
Audience and Experience Level: Basic, introductory
Continuing Education: No CE credits available

Reframing Public Health Informatics – A Communications Toolkit

Resource link: Reframing Public Health Informatics – A Communications Toolkit
Published by: Public Health Informatics Institute
Description: This toolkit includes: "Big picture" guidance on how to talk more effectively about public health informatics, including a Quickstart guide that reviews the topline recommendations, "reframed answers" to a set of FAQs, and sample talking points, examples, and elevator speeches. "Reframe cards" that can be used as quick reference guides for incorporating evidence-based values and metaphors into conversations, presentations, and writing. Sample communications, including sample PowerPoint slides, a sample grant application narrative, and animated metaphor GIFs that can be used in presentations or incorporated into web content. The grant application includes detailed notes that unpack the framing strategies illustrated, so that the recommendations can be extended to myriad new applications.
Training Time: NA
Cost and Resources: Free
Audience and Experience Level: Aimed at assisting public health in communicating about informatics. For public health professionals who work in state and local health departments, federal public health agencies, other public health associations, and organizations.
Continuing Education: No CE credits available

Antimicrobial Resistance and Genomic Epidemiology

Focus: This section delves into the integration of genomic epidemiology and antimicrobial resistance, emphasizing the role of whole genome sequencing (WGS) in bacterial surveillance and resistance characterization. Learners will gain practical skills in bioinformatics tools and methods for species identification, resistance profiling, and outbreak response, while enhancing their understanding of genomic data in antimicrobial resistance research and public health preparedness.

Genomic Epidemiology and Bioinformatics Webinars and Trainings

Resource link: Training Resources | Genomic epidemiology and bioinformatics webinars and trainings
Published by: Krisandra Allen, MPH, MB(ASCP)
Description: This site is a collection of training resources maintained by Krisandra Allen. She maintains this site to create a place to pull together resources and materials that can benefit the community.
Training Time: NA
Cost and Resources: Variable
Audience and Experience Level: Beginner to advanced
Continuing Education: Varies depending on the specific training.

Interdisciplinary Training in Genomic Epidemiology and Public Health Bioinformatics

Resource link: Interdisciplinary Training in Genomic Epidemiology and Public Health Bioinformatics
Published by: Institut Pasteur
Description: This programme combines lectures and practical sessions to enhance surveillance, preparedness, and readiness to respond to outbreaks. This training programme is intended for professionals from diverse backgrounds and fields of study linked to public health microbiology (e.g., bioinformatics, biology, computer science, biochemistry, microbial genomics, metagenomics, algorithm development, microbiology, molecular genetics, biomedical sciences, forensic biology, comparative and molecular bioscience, epidemiology, etc.) wishing to deepen their understanding and skills in public health bioinformatics and genomic epidemiology.
Training Time: Variable
Cost and Resources: Variable
Audience and Experience Level: Beginner to advanced
Continuing Education: No CE credits available

GenEpi-BioTrain - Training Materials on Genomic Epidemiology and Public Health Bioinformatics - Bridging the Gaps

Resource link: GenEpi-BioTrain - Training Materials on Genomic Epidemiology and Public Health Bioinformatics - Bridging the gaps
Published by: European Center for Disease Prevention and Control (ECDC)
Description: The training materials on this page were created to be delivered to participants of ECDC's Genetic Epidemiology and Bioinformatics training programme (GenEpi-BioTrain). It aims to bridge the capacity gaps between European Union (EU)/European Economic Area (EEA) countries in the field of bioinformatics by strengthening skills in this area.
Training Time: 65 hours
Cost and Resources: Free
Audience and Experience Level: Beginners in bioinformatics who are expected to have a future role in using whole-genome sequencing for public health and pathogen surveillance.
Continuing Education: No CE credits available

Whole-Genome Sequencing of Bacterial Genomes - Tools and Applications

Resource link: Whole genome sequencing of bacterial genomes - tools and applications
Published by: Technical University of Denmark through the Coursera platform
Description: The course will give the learners a basis to understand and be acquainted with WGS applications in surveillance of bacteria, including species identification, typing, and characterization of antimicrobial resistance and virulence traits, as well as plasmid characterization. It will also give the opportunity to learners to learn about online tools and what they can be used for through demonstrations on how to use some of these tools and exercises to be solved by learners with the use of freely available WGS analysis tools.
Training Time: 5 hours
Cost and Resources: Free
Audience and Experience Level: Anyone interested in whole-genome sequencing at a beginner level.
Continuing Education: No CE credits available

Introduction to Pathogen Genomics in Public Health

Resource link: Introduction to Pathogen Genomics in Public Health
Published by: CSTE
Description: This course is for those who are seeking an introduction to pathogen genomics through the public health lens. Participants will be provided an overview of genomic epidemiology and how it relates to infectious disease epidemiology more broadly, learn about disciplines outside of epidemiology that are foundational to genomic epidemiology, review real-word scenarios where pathogen genomics can inform response or policy decisions in public health practice and identify challenges that hinder the onboarding and routine application of pathogen genomics in public health practice.
Training Time: 1 hour
Cost and Resources: Courses are available for CSTE members.
Audience and Experience Level: Beginner
Continuing Education: No CE credits available

CSTE's Advanced Molecular Detection (AMD) Webinar Series

Resource link: CSTE's Webinar Library (use search term "AMD")
Published by: CSTE
Description: CSTE publishes new videos for the AMD series, which cover various topics. These are updated periodically as more training becomes available and are located in the webinar library.
Training Time: Each webinar is 1 hour
Cost and Resources: Courses are available for CSTE members.
Audience and Experience Level: Beginner to Advanced
Continuing Education: No CE credits available

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