Public Health, Epidemiology and Health Policy: Disease Burden, Surveillance and Priority Setting

19 – 23 July 2027
Barcelona - Eixample district four-star



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Introduction:

Public health, epidemiology and health policy decisions often rest on raw case counts, anecdote or the loudest request, so prevention budgets drift away from the conditions that cause most ill health and outbreaks are recognised late. This Core Concept course gives health managers and policy staff a population view: reading disease frequency and burden data, judging study evidence, running surveillance routines, weighing social determinants and ranking interventions. Participants apply each method to a case population and produce a Population Health Situation Analysis and Priority Brief for their own organisation.

Course Objectives:

- Describe the core functions of public health and position a health organisation's population responsibilities within the WHO health system building blocks
- Calculate and interpret incidence, prevalence, rates and DALYs to compare the burden of conditions across population groups
- Judge the strength of evidence from cohort, case-control, cross-sectional and randomised studies at concept level and apply the Bradford Hill criteria to causal claims
- Operate a surveillance routine and follow the stages of an outbreak investigation from signal detection to control measures and reporting
- Analyse social determinants of health and select prevention and health promotion interventions with explicit priority-setting criteria
- Plan the evaluation of a public health programme with a logic model, indicators and data sources

Target Audience:

- Health managers responsible for planning services and budgets for a defined population or region
- Public health officers accountable for disease surveillance, notifiable condition reporting and outbreak response
- Health policy staff who prepare options, briefs and priority lists for decision-makers
- Prevention and health promotion programme managers who design and run population campaigns
- Health insurance and purchasing managers who use population health data to shape benefit packages
- Planning and performance managers in provider networks who track population health indicators

Course Outline:

Day 1: Public Health Functions, Population Thinking and Health Systems

- Population Health Versus Individual Clinical Care: Scope and Decision Questions
- Core Public Health Functions: Assessment, Policy Development and Assurance
- WHO Health System Building Blocks: Service Delivery, Workforce, Information, Medical Products, Financing and Governance
- Health System Goals: Improved Health, Responsiveness and Fair Financing
- Population Health Profile Current-State Checklist for an Own Catchment

Day 2: Epidemiology Methods: Disease Frequency, Burden and Study Designs

- Counts, Proportions, Rates and Ratios: Numerator and Denominator Definitions
- Incidence, Prevalence and Crude, Specific and Age-Standardised Rates
- Disability-Adjusted Life Years: YLL Plus YLD in the Global Burden of Disease Method
- Descriptive, Cohort, Case-Control and Randomised Study Designs at Concept Level
- Relative Risk, Odds Ratio, Bias, Confounding and the Bradford Hill Criteria

Day 3: Surveillance Systems, Outbreak Investigation and Social Determinants

- Surveillance System Types: Passive, Active, Sentinel and Syndromic Reporting
- Case Definitions, Notification Flows and Surveillance Data Quality Attributes
- Outbreak Investigation Steps: Verification, Line Listing, Epidemic Curve and Control Measures
- Social Determinants of Health: Income, Education, Housing, Employment and Environment
- Health Inequality Measurement by Population Group Using Rate Ratios and Gradients

Day 4: Prevention, Health Promotion, Policy Analysis and Priority Setting

- Primordial, Primary, Secondary and Tertiary Prevention Levels with Population Examples
- High-Risk Versus Whole-Population Prevention Strategies and Their Trade-Offs
- Health Policy Analysis: Problem, Actors, Context and Process Triangle
- Priority-Setting Criteria Matrix: Burden, Effectiveness, Cost per DALY Averted and Equity
- Health Financing Functions at Overview: Revenue Collection, Pooling and Purchasing

Day 5: Case Work: Programme Evaluation and the Priority Brief

- Public Health Programme Logic Model: Inputs, Activities, Outputs, Outcomes and Impact
- Programme Evaluation Plan: Process, Outcome and Impact Indicators with Data Sources
- Case Study: Chronic Disease Burden Ranking for a Mixed Urban and Rural Population
- Population Health Situation Analysis and Priority Brief Drafting
- Decision-Maker Panel Review and Brief Defence

Skills You Will Gain:

- Disease Burden Estimation
- Epidemiological Rate Calculation
- Study Evidence Appraisal
- Surveillance Data Interpretation
- Outbreak Response Coordination
- Health Equity Analysis
- Intervention Priority Setting
- Public Health Programme Evaluation

Why Attend This Course:

- Return with a Population Health Situation Analysis and Priority Brief built on your own population's data and tested by a decision-maker panel
- Replace case counts and anecdote with rates, DALYs and study evidence when arguing for prevention funding
- Recognise an unusual rise in cases earlier and know which investigation steps come next
- Compare population health practice with managers and policy staff from ministries, insurers and provider networks in different health systems

Conclusion:

Population health improves when managers know which conditions cause the most ill health, who carries that burden, which evidence is strong and which interventions give most health for the resources available. The course moves from public health functions and health system building blocks, through rates, DALYs and study designs, to surveillance, outbreak investigation and social determinants, then to prevention, policy analysis and priority setting. The final day applies these methods to case populations and produces a Population Health Situation Analysis and Priority Brief.