



Introduction to Epidemiology and Medical Statistics Training Course



AGILE LEADERS
Training Center

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Overview

Introduction to Epidemiology and Medical Statistics Training Course is a five-day foundation course for healthcare, public health, clinical research, quality, and analysis functions who leave with an Epidemiology and Medical Statistics Evidence Interpretation Pack. Participants connect disease measures, study designs, sampling, descriptive statistics, confidence intervals, hypothesis tests, association measures, bias, confounding, and critical interpretation. Agile Leaders Training Center develops practical foundation capability in epidemiology and medical statistics.

Who Should Attend

- Healthcare functions responsible for interpreting service and outcome data
- Public health functions responsible for population measures and surveillance evidence
- Clinical research functions responsible for study data and published findings
- Quality functions responsible for evidence-based improvement measures
- Analysis functions responsible for health reports and statistical interpretation

The course assumes participants can use basic arithmetic, read tables and charts, and work with health records or reports, and leaves out advanced statistical programming, specialist causal inference, clinical decision-making, and certification exam preparation.

Departments and Industries

The course supports departments and industries that interpret population and medical evidence.

- Hospital quality and clinical governance
- Public health surveillance and planning
- Pharmaceutical and clinical research
- Health insurance outcomes analysis
- Academic and nonprofit health research

Learning Objectives

By the end of this course, participants will be able to:



- Calculate incidence, prevalence, mortality, and risk measures
- Compare observational and experimental study designs
- Apply sampling and descriptive statistical methods
- Use confidence intervals and hypothesis tests
- Analyze association, bias, and confounding
- Evaluate medical and public-health evidence

Course Agenda

Day 1: Measure Population Health

- Population, Sample, and Case Definition Map
- Incidence and Prevalence Calculation Sheet
- Mortality and Case-Fatality Measure Table
- Person-Time and At-Risk Denominator Method
- Outbreak Curve and Epidemic Pattern Chart

Day 2: Compare Study Designs

- Cross-Sectional Study Design Canvas
- Case-Control Sampling and Odds Ratio Map
- Cohort Follow-Up and Risk Ratio Framework
- Experimental Allocation and Comparison Diagram
- Bias and Confounding Assessment Matrix

Day 3: Summarize Medical Data

- Variable Type and Measurement Scale Guide
- Sampling Method Selection Matrix
- Frequency Distribution and Contingency Table
- Center and Dispersion Summary Profile
- Data Visualization Selection Checklist

Day 4: Interpret Statistical Evidence

- Sampling Distribution and Standard Error Model
- Confidence Interval Interpretation Guide
- Null and Alternative Hypothesis Map
- Statistical Test Selection Decision Tree
- Effect Size and Statistical Significance Review



Day 5: Practice Evidence Interpretation

- Exercise: Calculate Epidemiological Measures
- Exercise: Diagnose Study Bias and Confounding
- Exercise: Interpret Confidence Intervals and Tests
- Exercise: Appraise an Association Measure
- Capstone: Epidemiology and Medical Statistics Evidence Interpretation Pack

Practical Exercises

The course uses suggested activities based on hospital, public health, clinical research, insurance, and community-health evidence.

- Suggested activity: calculate disease-frequency measures from a defined population and time period.
- Suggested activity: compare study designs and identify selection, measurement, and confounding risks.
- Suggested activity: summarize a health dataset and interpret intervals, tests, effect sizes, and uncertainty.
- Suggested activity: assemble measures, design appraisal, statistical interpretation, and conclusions into the final pack.

FAQs

Who suits epidemiology and medical statistics training, and what does it assume?

Healthcare, public health, clinical research, quality, and analysis functions suit the training; it assumes basic arithmetic, ability to read tables and charts, and familiarity with health records or reports.

How does introductory epidemiology and medical statistics differ from advanced biostatistics?

Introductory epidemiology and medical statistics focuses on core measures, study designs, sampling, descriptive analysis, intervals, tests, bias, and interpretation, while advanced biostatistics uses more complex models and computational methods.

What is the difference between incidence and prevalence?

Incidence measures new events arising in a population at risk over time, while prevalence measures all existing cases in a defined population at a specified point or period.

How should confidence intervals be interpreted in medical statistics?

A confidence interval shows a range of values compatible with the sample and method, helping readers judge precision, direction, and practical importance alongside the estimate and study design.



Why do bias and confounding matter in epidemiological studies?

Bias can systematically distort selection or measurement, while confounding can mix the effect of an exposure with another factor; both can mislead association estimates and conclusions.

Conclusion

Participants take back an Epidemiology and Medical Statistics Evidence Interpretation Pack linking population measures, study designs, sampling, summaries, intervals, tests, associations, bias, confounding, and conclusions. It changes isolated statistical outputs into traceable health-evidence interpretation. The pack supports coordinated work across clinical, public health, research, quality, and analysis functions.



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