

HIM-1411: HEALTHCARE STATISTICAL APPLICATIONS & RESEARCH

Cuyahoga Community College

Viewing: HIM-1411 : Healthcare Statistical Applications & Research

Board of Trustees:

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Academic Term:

Fall 2021

Subject Code

HIM - Health Information Management

Course Number:

1411

Title:

Healthcare Statistical Applications & Research

Catalog Description:

Introduction to the use, collection, calculation, presentation, and verification of health care statistical data including measures of central tendency; frequency, percentile, standard deviation; specific healthcare statistical formulas such as census days, discharge days, length of stay, percent of occupancy, autopsy rates, birth rates and more; fundamental concepts of descriptive statistics; data validity and reliability; data presentation techniques; vital statistics; healthcare institutional research; management functions related to departmental budget calculations, employment statistics and productivity.

Credit Hour(s):

2

Lecture Hour(s):

1

Lab Hour(s):

3

Requisites

Prerequisite and Corequisite

HIM-1301 Introduction to Health Information Management, and HIM-1311 Legal Aspects of Health Care, and completion of Mathematics 1000 level or higher.

Outcomes

Course Outcome(s):

Calculate statistics for healthcare operations

Essential Learning Outcome Mapping:

Quantitative Reasoning: Analyze problems, including real-world scenarios, through the application of mathematical and numerical concepts and skills, including the interpretation of data, tables, charts, or graphs.

Objective(s):

1. Describe how statistics are used in healthcare.
2. Define primary and secondary sources of statistics.
 - a. State and describe agencies/organizations that maintain health statistics.
 - b. State and describe sources of health data in the United States.
3. Differentiate between descriptive and inferential statistics.
4. Define hospital-related statistical terms.
5. Calculate hospital-related inpatient and outpatient statistics using approved formulas
 - a. Census days
 - b. Discharge days

- c. Length of stay
 - d. Percent of occupancy
 - e. Autopsy rates
 - f. Birth rates
 6. Calculate community-based morbidity and mortality rates.
 7. Calculate and explain measures of central tendency
 - a. Mean
 - b. Median
 - c. mode
 8. Describe the characteristics of the normal distribution.
 - a. Calculate Frequency, percentile and standard deviation
 - b. Differentiate the relationships that measure central tendency and explain variations to the normal distribution
 9. Display healthcare data using tables, charts and graphs.
 10. Locate healthcare-related on-line state and federal databases on the Internet.
 11. Calculate management statistics needed within the Health Information Management department:
 - a. Employee productivity rates
 - b. Employee Compensation
 - c. Labor costs
 - d. Employee staffing levels
 - e. Operational budgets
 - f. Capital budgets
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Methods of Evaluation:

1. Class participation
2. Assignments
3. Midterm examination
4. Final examination
5. Quizzes

Course Content Outline:

1. Introduction to health statistics
 - a. Statistics
 - i. Reasons for studying statistics
 - ii. Importance of data
 - b. Descriptive statistics versus Inferential statistics
 - c. Sources of health care statistics
 - i. Primary data sources
 - ii. Secondary data sources
 - d. Users of health care statistics
2. Mathematics review
 - a. Fractions
 - b. Quotient
 - c. Decimals
 - d. Rounding numbers
 - e. Percentage
 - i. Common transformations of fractions
 - ii. Decimals
 - iii. Percentages
 - iv. Using spreadsheets to convert fractions to decimals and percentages
 - f. Ratios
 - i. Proportions
 - ii. Rates
 - g. Averages
3. Patient Census
 - a. Inpatient census
 - i. Complete master census
 - ii. Daily inpatient census

- iii. Inpatient service days (IPSD)
 - iv. Total inpatient service Days
 - b. Calculation of inpatient service days (IPSD)
 - c. Summary of census data
 - d. Average daily inpatient census
 - i. Average daily newborn census
 - ii. Average daily inpatient census for a patient care unit
- 4. Inpatient bed occupancy
 - a. Percentage of occupancy
 - b. Inpatient bed count
 - i. Labor room beds and newborn bassinets
 - ii. Emergency department beds
 - iii. Observation patient beds
 - c. Bed count days
 - d. Inpatient bed occupancy ratio or percentage
 - i. Change in bed count
 - e. Newborn bassinet occupancy ratio or percentage
 - f. Bed turnover rate
- 5. Length of stay
 - a. Length of stay
 - i. Discharge days
 - ii. Calculating the length of stay in an outpatient setting
 - iii. Total length of stay
 - iv. Average length of stay
 - v. Average Newborn length of stay
 - b. Leave of absence days
- 6. Mortality rates
 - a. Guidelines for calculating mortality rates
 - i. Gross mortality rate
 - ii. Net mortality rate
 - iii. Postoperative mortality rate
 - iv. Anesthesia mortality rate
 - v. Maternal mortality rate
 - vi. Infant mortality rate
 - vii. Fetal mortality rate
 - viii. Cancer mortality rate
- 7. Hospital autopsies and autopsy rates
 - a. Autopsy rates
 - i. Gross autopsy rate
 - ii. Net autopsy rate
 - b. Hospital autopsies
 - i. Adjusted hospital autopsy rate
 - ii. Newborn autopsy rate
 - iii. Fetal autopsy rate
- 8. Morbidity and other miscellaneous rates
 - a. Morbidity rates
 - i. Infection rate
 - ii. Postoperative infection rate
 - iii. Complication rate
 - iv. Cesarean section rate
 - v. Consultation rate
- 9. Management statistics
 - a. Employment information rates
 - i. Employee compensation and unit labor costs
 - ii. Unit cost for release of Information
 - iii. Other labor unit costs
 - iv. Productivity rates
 - v. Staffing levels
 - b. Budgets

- i. Operational budgets
 - ii. Capital budgets
- 10. Descriptive statistics in healthcare
 - a. Concepts in descriptive statistics
 - b. Frequency distribution
 - c. Rank
 - d. Percentile
 - i. How and why percentiles are used
 - ii. Quartile
 - iii. Decile
 - e. Measures of variation
 - i. Variability
 - ii. Range
 - iii. Variance
 - iv. Standard deviation
 - f. Normal distribution and other curves
 - g. Correlation
- 11. Presentation of data
 - a. Types of data
 - i. Categorical data
 - ii. Numeric data
 - b. Data display
 - i. Tables
 - ii. Graphs
 - c. Preparing reports
- 12. Basic research principles
 - a. Basic research principles
 - b. Types of research
 - c. The research process
 - d. Data interpretation issues
- 13. Inferential statistics
 - a. Confidence intervals
 - b. Hypothesis testing

Resources

White, Susan. (2020) *Calculating and Reporting Healthcare Statistics*, Chicago : American Health Information Management Association.

Sayles, Nanette B. (2020) *Health Information Management Technology : An Applied Approach*, Chicago : American Health Information Management Association.

Resources Other

1. Journal of the American Health Information Management Association. JAHIMA Published monthly by AHIMA, Chicago, IL.
2. Current events that may apply to Healthcare Statistics found on the world wide web.

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Key: 2148