

TEACHING MODULE

- **INSTRUCTOR'S NAME AND COLLEGE NAME**

Kay Gooding, MPH, MAEd, RHIA
Pitt Community College

- **COURSE TITLE AND NUMBER**

HIT 210 Health Care Statistics and/or

HIT 212 ICD-9-CM Coding

Any course in which a study of international mortality statistics is relevant

- **MODULE TITLE**

Collecting, utilizing and trending mortality data using the World Health Organization Statistical Information System (WHOSIS) and understanding the usage of ICD-9 versus ICD-10

DESCRIPTION OF MODULE

This module consists of discussion, explanation and the use of exercises that can be used as an individual learning module or can be used throughout the study of disease processes/coding chapters to correlate mortality information as a learning tool. During the 16 weeks of a semester, this will correspond to approximately 2 weeks of concentrated learning or can be spread throughout the semester. Topics include: Understanding ICD-9 and ICD-10 and their relationship to adaptations used in the United States; understanding the input of mortality data; usage of the WHOSIS system for data retrieval; and learning to compare data across the use of different versions of coding systems. Comparisons will be made to other countries' mortality data. Countries, as selected by the user, will be used for comparison to the United States and to each other to assess mortality differences and ultimately technology differences of the countries selected in order for students to realize the implications of the availability of technology on outcomes.

OBJECTIVES

Upon completion of this module, students should be able to:

(A). Collect and contrast mortality data from at least three countries of varying socio-economic levels.

(B). Understand the impact of ICD-9-CM, ICD-9 and ICD-10 as multiple systems are

used internationally on a simultaneous basis

(C). Understand how the variations of advanced medical technology from country to country can affect mortality within a country and its implications on mortality statistics

METHODOLOGY

Lectures/Online Presentation of materials:

This module can be presented through lectures or online. The introductory content should be the historical perspectives and the current usage of the **International Classification of Diseases** (including **ICD-9-CM**, **ICD-9**, and **ICD-10**); an introduction to the World Health Organization and the purposes of the World Health Organization Statistical Information System as related to mortality data.

Internet resources/Readings:

ICD-10

<http://www.cdc.gov/nchs/about/major/dvs/icd10des.htm>

ICD-10-CM

<http://www.cdc.gov/nchs/about/otheract/icd9/abtcd10.htm>

ICD-9

<http://www.cdc.gov/nchs/about/major/dvs/icd9des.htm>

ICD-9-CM

<http://www.cdc.gov/nchs/about/otheract/icd9/abtcd9.htm>

WHO Statistical Information System (WHOSIS)

<http://www.who.int/whosis/en/>

National Center for Health Statistics

<http://www.cdc.gov/nchs/icd9.htm>

Centers for Disease Control and Prevention

<http://www.cdc.gov/nchs/Default.htm>

National Vital Statistics System

<http://www.cdc.gov/nchs/nvss.htm>

Mortality Data from the National Vital Statistics System

<http://www.cdc.gov/nchs/deaths.htm>

National Center for Health Statistics International Activities

<http://www.cdc.gov/nchs/about/otheract/intnatl/intnatl.htm#International%20Mortality%20Database>

Assignments:

Students may be divided into groups and each group will select appropriate countries for comparison to the United States (or this can be done as individual assignments). This review will focus on the variations of mortality statistics from country to country taking into account socio-economic factors of each country as related to available medical technology. As the reviews of mortality statistics are done for countries, students are to display the information on a spreadsheet/matrix for comparison on a larger scale among the countries selected by all.

Evaluation:

The evaluation of the students' understanding of the materials during the semester will be based on the following: completion of assignments, participation during class/online discussion, and the project based on the following percentages:

Assignments 40%

Class/Online Participation 20%

Project 40%

EXERCISE: Comparison of mortality statistics among countries of differing socio-economic levels:

Reference materials for this exercise:

Primary Resource for information:

[WHO Statistical Information System \(WHOSIS\)](#)

National statistics for 70 core indicators on mortality, morbidity, risk factors, service coverage, and health systems

Explanation of ICD

<http://www.who.int/classifications/icd/en/>

Mortality Database – a part of the WHO Statistical Information System (WHOSIS)

<http://www.who.int/whosis/database/mort/table1.cfm>

This site will allow the student to research causes of death per country using ICD-9 and/or ICD-10 codes. By using this site, students can better understand the diversity of the two coding systems and the difficulties inherent in attempting to do statistical analysis and comparison when two entirely different systems are utilized.

Dependent upon the dates available, the data may be in ICD-9 or ICD-10 format. This is to ensure that the student can retrieve and compare data utilizing this dichotomy of reporting measures.

First the student should research the causes of death in the United States for the most recent year available (at the time of this writing, the year 2000). In reviewing that information, the student needs to be reminded that ICD-10 is used for official mortality reporting in the United States, despite the fact that for all other purposes in this country ICD-9-CM is utilized. The goals of this exercise are:

1. To recognize that ICD-10 is used on an international basis for the reporting of mortality data; whereas, ICD-9-CM is used in the United States for the reporting of morbidity data for data collection and analysis, quality assurance, utilization review and health care reimbursement.
2. To recognize that in order to analyze statistical information from one country to another, without distortion, either the data collection tools must be equivalent or

appropriate techniques must be used to guarantee equivalency.

3. To realize that in the United States, morbidity data collected in health care facilities throughout the United States and mortality data collected via vital statistics are separate and distinct and until ICD-10 is officially implemented, this variation in data collection instruments will continue.

Steps:

1. Gathering the data:

<http://www.who.int/whosis/database/mort/table1.cfm> - using this site, review and examine (print if desired) the statistics for the following:

- A. the United States for any year prior to 1999 AND either data from 1999 or 2000 - or subsequent year(s), if available
- B. a country, substantial in size, of the student's preference, for any year prior to 1999 AND either data from 1999 or 2000 - or subsequent year(s), if available
- C. a country that is unfamiliar to the student for any year prior to 1999 AND either data from 1999 or 2000 - or subsequent year(s), if available

NOTE: The purpose of the variation in dates is to assess data that has been recorded in both ICD-9 and ICD-10 for each country reviewed

2. Comparison of the data

NOTE: The data for the United States are listed by ICD-10 for 1999 and 2000 and by ICD-9 for the years prior.

In gathering the data, make sure that the student gathers data from a time period in which all countries can be compared via ICD-9 codes (this may require alteration of the dates used) as well as comparing data via ICD-10 codes (again may require alteration of the dates used).

- A. Compare from country to country the causes of death. Review the variations of age and sex as these comparisons are made.
- B. Compare various causes of death and relate them to the

specific countries used and the technology available in each country. Assign further research as needed to learn more about technology available in each country.

- C. Compare statistics from the same countries for years when ICD-9 was used and for years when ICD-10 was used in order to recognize the differences in the coding systems therefore understanding how a change in a coding system might affect data collection and how education in the appropriate usage of the coding systems can skew international data.

3. Drawing conclusions

The goals of this exercise will have been met if the student can make comparisons of health care data from country to country with the realizations:

- that the coding of mortality statistics originates from each individual country
- that the data collected through these codes is subject to the educational level and understanding of the coding system of the individual actually assigning the codes AND the degree of specificity of the information recorded on death certificates in each country (accuracy is also dependent upon the knowledge base of the individual completing death certificate, etc.)
- that changes and updates in the coding system may affect statistical analysis and findings
- that the comparison and contrasting of data from one country to another offers a wide scope of opportunities for further review and research