Weeks 7 & 8 Overview

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# Study Guide

| Message | Welcome to Weeks 7 & 8 of Understanding Patient Data!   * The Electronic Health Record * Challenges of Data Mining |
| --- | --- |
| Reminders | * There is no discussion question due this week. * Refer to Lecture 3.3 *Organizing data sets in excel* for assignment 2. * Suggested IT website: *Modern analytics in excel.* Available at [Excel Help & Learning](https://support.office.com/en-US/Excel) * See discussion rubric for grading criteria. |
| Due Dates | * Assignment 2 – *Data Presentation of heroin-related deaths in New Jersey*   + Submit the completed assignment via CANVAS LMS, by Monday of Week 7 at 11:59 pm. * DQ 6   + Your initial post is due by 11:59 PM ET on Saturday of Week 8.   + Your replies are due by 11:59 PM ET on Monday of Week 8. |

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# Objectives

* The student will be able to investigate and manage data sets from electronic health record data.
* The student will be able to investigate data sets and identify the challenges of data mining.

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# Instructions

**Lesson 7**

1. Required reading, articles:

* Hu, Z., Melton, G. B., & Simon, G. J. (2015). Strategies for handling missing data in detecting postoperative surgical site infections. *International Conference in Healthcare Informatics,* 499. doi:10.1109/ICHI.2015.89
* Post, A. R., Kurc, T., Choleti, S., Gao, J., Lin, X., Borestein, W., … Saltz, J. H. (2013). The analytic information warehouse (AIW): A platform for analytics using electronic health record data. *Journal of* *Biomedical Informatics, 46(3)*, 410-424. doi:10.1016/j.jbi.2013.01.005
* Wallace, I. M. (2016). Is patient confidentiality compromised with the electronic health record? *CIN: Computers, Informatics, Nursing*, 33(2), 58–62. doi: 10.1097/CIN.0000000000000126

1. View the following **Lecture/Voice over PowerPoint:**

* Lecture 3.3 - *Organizing data in excel*
* Lecture 4.1 - *Electronic health record*

1. **Assignment 2** - *Data Presentation: NJ OSME Drug-Related Deaths in NJ Counties*

Objectives **-** *The student will demonstrate knowledge of data management by:*

* inspecting and cleaning data.
* removing, imputing, and explaining incomplete data entries.
* sorting data.
* creating histogram.
* displaying scatterplots.
* making preliminary inferences.

**Instructions**

* Use data from filename: ***5.3a Chart on Drug Deaths by NJ County (2015).pdf***
  + Input all data by county (from the file named above) into an excel spreadsheet (sheet 1).
    - Obtain descriptive statistics on variables for Heroin drug-related deaths. (Hint: The statistical results may display on a new sheet # in the file).
    - Cut and paste descriptive statistics results from the new sheet # onto sheet 1 with its corresponding data.
    - Obtain descriptive statistics on a second variable of your choice.
    - Also, cut and paste descriptive statistics results from the new sheet # onto sheet 1 with its corresponding data.
    - Statistically compare the descriptive statistics of heroin with variable #2 (a variable selected by you) and provide an interpretive statement about the comparison.
  + On sheet 3 of the Excel spreadsheet file, create a copy of the original data from sheet 1. (Omit the Record row for column totals).
    - Using sheet 2, SORT the data on total deaths from largest to smallest.
    - Create a bar chart of the data.
    - Create a scatterplot of the data.
    - Provide an interpretive statement about Heroin based on a combined

(1) analysis of the bar chart, and (2) analysis of the scatterplot.

* + - Using descriptive statistics provides an interpretive statement regarding a comparison of the central tendency among the selected variables: 1) Cocaine, 2) Fentanyl and 3) Oxycodone.
  + On a separate sheet of the Excel spreadsheet file, include a key or log for the variable names (abbreviations, terms, etc.) used for the data.
* Submit the completed excel spreadsheet assignment via CANVAS LMS by 11:59 PM Monday.

This assignment must be typed and submitted electronically in MS Excel (.xls or .xlsx) format. The file must be named in the following format: *Lastname\_Assignment2.xls*. **DO NOT submit the assignment as a .pdf or .docx file.** Submit your completed file to *Assignment 2*, listed on the *Modules* and *Assignments* pages, as a file attachment.

| **Assignment 2 - Data Presentation Grading Rubric** | **Final Grade Points** |
| --- | --- |
| Data input, inspection and cleaning of data (if needed). | 20 |
| Creation of descriptive statistics on four variables. | 16 |
| Sorted Data | 14 |
| Bar Chart (2-D) | 12 |
| Scatter Plot Display | 12 |
| Interpretive statements (analysis) of patient data on:   * Sorted data. * Scatterplot of the data. * Comparison of heroin and self-selected variable(s).   Comparison of central tendency for three variables assigned. | 26 |
| **Total** | 1**00** |

**IMPORTANT REMINDER:** Each student is expected to work on this **individually** and within the confines of the University Academic Honesty Policy (see <http://www.rowanonline.com> for University Policies and details).

**Lesson 8**

1. Required reading, articles:

* Centers for Medicare & Medicaid Services [CMS]. (2017, Feb.). [*Quality measures inventory user guide and data dictionary*](https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/QualityMeasures/Downloads/CMS-Inventory-User-Guide.pdf)*.* [22pp.].
* Sharma, B. R., Kau, D., & Manju. (2013). A review on data mining: Its challenges, issues and applications. *International Journal of Current Engineering and Technology, 3*(2), 695-700.

1. View the following **Lecture/Voice over PowerPoint:**

* Lecture 4.2 - *Challenges of data mining*

1. **DQ 6.** Respond to the question(s) below for your initial post on the DQ 6 Discussion Board. Support your responses with a referenced rationale.

* Outline what happens to raw patient data prior to its access for data mining.
* Identify the five (5) factors that have influenced growth of data mining and the fully developed three (3) technologies that have supported that growth.
* Identify two (2) challenges of working with qualitative data found in the electronic health record.

Post your initial response by 11:59 pm Saturday. Respond to the posts of three (3) individual peers on at least two (2) separate days before the end of each weekly discussion by 11:59 pm Monday. Please be sure to reference the Discussion Questions guide in the Assignment Outline section of the Syllabus for further assignment details.

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