Weeks 3 & 4 Overview

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# Study Guide

| Message | Welcome to Weeks 3 & 4 of Understanding Patient Data! |
| --- | --- |
| Reminders | * See discussion rubric for grading criteria. * Recommended reference   + Harvey, G. (2013). *Excel for dummies.* Hoboken, NJ: John Wiley and Sons, Inc. * Suggested IT website:   + *Modern analytics in excel.* Available at [Excel Help & Learning](https://support.office.com/en-US/Excel) |
| Due Dates | * DQ 2   + Your initial post is due by 11:59 PM ET on Saturday of Week 3.   + Your replies are due by 11:59 PM ET on Monday of Week 3. * DQ 3   + Your initial post is due by 11:59 PM ET on Saturday of Week 4.   + Your replies are due by 11:59 PM ET on Monday of Week 4. * Assignment 1 - *Working with Electronic Health Record Data*   + Submit the completed assignment via CANVAS LMS, by Monday of Week 4 at 11:59 pm. |

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# Objectives

* The student will be able to recognize the importance of patient data management.
* The student will be able to identify and access sources of patient data.

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# Instructions

**Lesson 3**

1. Required reading, text(s):

* Strome, T. (2013). Chapter 3 – Developing an analytic strategy to drive change (pp. 29-50). In T. L. Strome, *Healthcare analytics for quality and performance improvement*. Hoboken, NJ: Wiley Publishers.
* Brown, M. S. (2014). Chapters 8 – Digging into your data (pp.111-118). In M. S. Brown, *Data mining for dummies.* Hoboken, NJ: Wiley Publishers.

1. Required reading, articles:

* Bellazzi, R. (2014). Big data and biomedical informatics: A challenging opportunity. *International Medical Informatics Association [IMIA] Yearbook of Medical Informatics,* 22(9), 8-13. doi:10.15265/IY-2014-0024
* Case, M., Furlong, L. I., Albanell, J., Altman, R. B., Bellazzi, R., Boyer, S., … Sanz, F. (2013). Improving data and knowledge management to better integrate health care and research. *Journal of Internal Medicine, 274,* 321-328. doi: 10.1111/joim.12105
* Chiang, F., & Gairola, D. (2018). InfoClean: Protecting sensitive information in data cleaning. *Journal of Data and Information Quality,* 9(4), 22:1-22:26. doi:10.1145/3190577

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

* Lecture 2-1 - *Data management*

1. **DQ 2.** Respond to the question(s) below for your initial post on the DQ 2 Discussion Board. Support your responses with a referenced rationale.

* What is the fundamental objective of healthcare analytics?
* Identify the criteria for value-added activities in healthcare (provide examples of each).
* Why are standards necessary to facilitate patient data translation?
* Why is data cleaning necessary?

Post your initial response by 11:59 pm Saturday. Respond to the posts of 3 individual peers on at least two 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.

**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 4**

1. Required reading, text(s):

* Strome, T. (2013). Chapter 4 – Defining healthcare quality and value (pp.51-74). In T. L. Strome, *Healthcare analytics for quality and performance improvement*. Hoboken, NJ: Wiley Publishers.
* Brown, M. S. (2014). Chapters 10 – Ferreting out public data sources (pp. 141-162). In M. S. Brown, *Data mining for dummies.* Hoboken, NJ: Wiley Publishers.

1. Required reading, articles:

* Data Central Science. (2016). [*10 great healthcare data sets*](https://www.datasciencecentral.com/profiles/blogs/10-great-healthcare-data-sets) [weblog]
* Onstad, K., Khan, A., McCartney, J. (2013). [*User’s guide for the inventory of benchmarking databases for adapted for Microsoft® Excel version*. [16pp.]](https://nhqrnet.ahrq.gov/inhqrdr/static/xls/Benchmarking_UseGuide.pdf). Mathematica Policy Research.
* von Zernichow, B. M., & Roman, D. (2017). Usability of visual data profiling in data cleaning and transformation. In: Panetto H. et al. (eds.) *On the move to meaningful internet systems. OTM 2017 Conferences. OTM 2017. Lecture Notes in Computer Science,* *10574,* 480-496. doi: 10.1007/978-3-319-69459-7\_32

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

* Lecture 2.2 *Sources of data*

1. **DQ 3.** Respond to the question(s) below for your initial post on the DQ 3 Discussion Board. Support your responses with a referenced rationale.

* Describe the continuum of healthcare quality measurement and its relationship to value.
* Explain the challenges of working with data found in the electronic health record; use examples from the “Sample patient records”.
* Use a link provided by [*Data Science Central*](http://www.datasciencecentral.com/profiles/blogs/) to identify and summarize at least one specific patient data set.

Post your initial response by 11:59 pm Saturday. Respond to the posts of 3 individual peers on at least two 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.

1. **Assignment 1.** *Organizing Data in Excel - Working with Electronic Health Record Data.*

Refer to the following documents located in the ***Assignment 1 Resources*** page in this week’s module.

* + 3.3a BMI-Understanding and Calculating.pdf
  + 3.3a Case Studies.pdf
  + 3.3a Shock Index-Understanding and Calculating.pdf

**Objectives -** *The student will work through data manipulation and formatting processes to:*

* Obtain familiarity with the print format of an electronic patient health record.
* Create an excel spreadsheet as the basis for data management.
* Demonstrate ability to work with de-identified patient data.
* Identify missing values and the construction of (12) data values.
* Demonstrate ability to identify and correct basic errors in data.
* Demonstrate ability to work with descriptive statistics.

**Instructions:**

1. Create an Excel spreadsheet using the sample patient records in the file named:
   * *DA 03510 Case studies.*
2. Demonstrate knowledge of confidentiality of patient data.
3. Create individual variables (12) for patient record-ID, demographics, vital signs, etc.
4. Construct the following additional Excel spreadsheet variables for each record:
   * *Insert Excel variable formula to auto create new value for BMI = kg/m2 where kg is a person's weight in kilograms and m2 is their height in meters squared, a healthy weight 18.5 to 24.9 [normal].*
   * *Insert Excel variable formula to auto create new value for Shock index (SI) = heart rate/systolic blood pressure (HR/SBP), a normal range of 0.5 to 0.7 in healthy adults.*

Submit completed excel spreadsheet and a variable (values) log via CANVAS LMS. The variable values log may be included on the bottom of the spreadsheet as a key to the terms and abbreviations used.

This assignment must be typed and submitted electronically in MS Excel (.xls or .xlsx) format. The spreadsheet file must be named in the following format: *Lastname\_Assignment1.xls*. **DO NOT submit the assignment as a .pdf or .docx file.** Submit your completed document to *Assignment 1*, listed on the *Modules* and *Assignments* pages, as a file attachment.

| **Assignment 1 - Working with eHR Grading Rubric** | **Final Grade Points** |
| --- | --- |
| Creation of Excel spreadsheet of patient data. | 15 |
| De-identification of patient data. | 10 |
| Constructed data (impute) values for Body Mass Index (BMI). | 10 |
| Constructed data (impute) values for Shock Index (SI). | 10 |
| Identification and management of missing values. | 20 |
| Display of descriptive statistics with inferences (interpretive statement(s). | 15 |
| Spreadsheet variable log (key of terms): Identification of abbreviated terms for data entry values, and explanation for data omissions. | 20 |
| **Total** | 100/100 |

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