Using Administrative Data for Health Services Research (M19-5251)

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Semester: Spring 1 and 2
Thurs 10-1 p.m., 2nd floor, TAB

Course Description and Objectives:
The objective of this advanced graduate course is to prepare students to perform outcomes, comparative effectiveness, and health services research using administrative data. Lectures will cover various types of national and state administrative databases, review journal articles using these databases, instruction in SAS programming, and application of research methods using administrative databases. Strengths and limitations of large databases commonly used for research will be considered, and special attention will be devoted to large databases readily available to new investigators. Students will learn how to link and analyze large databases, understand the key issues related to data security and confidentiality, and become knowledgeable about key methodologic issues in studies using administrative data. Students will develop a research proposal in their own area of interest and complete a short research project that uses administrative data.

Competencies
• Identify the different types of administrative data and understand the origin and completeness of the information available.
• Identify population and other data sources that can be used to augment readily available medical administrative data.
• Understand the validity of data elements in administrative data and what can be done to improve the accuracy of information available.
• Use statistical software to perform common data management steps with large administrative datasets and perform basic analyses.
• Draw appropriate inferences from analysis of administrative data, understanding the limitations of the various datasets.
• Communicate the strengths and limitations of observational studies using administrative data.

Recommended Textbooks (not mandatory):
Alternative: http://www.ats.ucla.edu/stat/sas/default.htm
ICD-9-CM book (old) – strongly recommended. Available through Amazon for < $10

Required Software: SAS Enterprise Guide 7.1 and access to CADR LINUX server

Expectations
• Students will have a basic background in epidemiology and biostatics.
• Attendance in lectures, which will be as interactive as possible, is expected.
• Required readings should be read before class each week; they will allow the students to understand the topics in greater depth and enable more active participation in class. Recommended readings provide more detailed information about particular subject areas selected as resources or guidance materials for a specific database or topic of interest. Articles will be selected after the first class based on the background and experience of students.
• Students are required to use SAS statistical software and write basic code.
• There will be a series of short assignments over the course of the semester with a project due at the end of the course.
• Final grades will be based on the assignments below.

Formal review of journal article (10 points):
Review journal articles related to administrative data and outcomes, CER, or health services research. Students will present the information in class (~ 10 minutes). Guidelines for review of article will be provided in class.

Programming Exercises (30 points total)
Students will be asked to complete a number of programming exercises to demonstrate mastery of SAS programming. The exercises must be turned in prior to the next class.

Project Proposal (10 points):
Students will submit a 1 to 2-paragraph description of their proposed course project (see description below), including the primary research question, proposed study population, and database. Students will be provided timely feedback so that they can take comments into account before finalizing their project.

Course Project (50 points):
Students will implement a project, preparing an abstract for poster or oral presentation. The hope is that the topic is of sufficient interest to the student that the presentation becomes a full manuscript after completion of the course. Using HCUP data accessed through the Center for Administrative Data Research, students will examine an outcomes, CER, or health service question. Students will identify a study cohort based on demographic and/or clinical criteria, select relevant data elements from the database, and propose statistical analyses to address the study question. At a minimum, the proposed analyses should include simple descriptive (univariate and bivariate) statistics for the study cohort, such as demographic and clinical characteristics and the main outcomes of interest. Students should do more advanced multivariate statistics, addressing analytic and methodologic issues covered in the course as well as epidemiology and biostatistics courses, such as confounding variables, risk adjustment, clustering of data, and weighting. Due Date: May 10
Mental Health Services are available for full-time students enrolled on the Medical School campus. Students can self-refer to a counselor (phone: 314-362-2404, Option # 1 or Option # 2); or make an appointment with Dr. Karen Winters through Student Health Services (SHS), telephone: 314-362-3523, and follow the prompts.

There are also contractual mental health service providers who are available off-campus. More information regarding this coverage and a list of participating providers are accessible via https://wusmhealth.wustl.edu/ and then clicking on Students and scrolling down to Mental Health Information https://wusmhealth.wustl.edu/students/mental-health-information/.

Please do not hesitate to reach out to Dr. Winters, 314-362-3523, or to any of our off-campus providers https://wusmhealth.wustl.edu/
| SCHEDULE |
|-----------------|--------------------------------------------------|
| **Jan. 18**     | Introduction to Administrative Data and Research  |
|                 | Ethics and Regulation Issues related to Administrative Data |
|                 | SAS Lab: Introduction to SAS and statistical programming |
| **Jan. 25**     | Discharge/Billing Data: Healthcare Cost and Utilization Project (HCUP) Data |
|                 | SAS Lab |
|                  | Andrews RM. Statewide hospital discharge data: collection, use, limitations, and improvements. |
| **Feb. 1**      | Facility coding |
|                 | Student Article Presentations – HCUP |
|                 | SAS Lab |
|                  | Lucyk K, Tang K, Quan H. Barriers to data quality resulting from the process of coding health information to administrative data: a qualitative study. BMC Health Serv Res 2017;17:766. |
| **Feb. 8**      | Measurements, coding algorithms, validation |
|                 | SAS Lab |
|                 | Outline of project proposal due |
Recommended Articles:

Feb. 15
Claims Data: Private Insurer Data – Anne Mobley Butler
*Student Article Presentations – coding algorithm or validation studies*
SAS Lab

Feb. 22
Claims Data: CMS Medicare Data
*Student article presentations – private insurer data*
SAS Lab
Table 1 due

Mar. 1
Veterans Administration Data - Ziyad Al-Aly, MD and Charlie Bowe
Clinical Epidemiology Center, St. Louis VAMC
*Student Article Presentations – Medicare data*
SAS lab

Mar. 8
SEER-Medicare data
Mario Schootman, PhD
Saint Louis University College for Public Health and Social Justice
*Student Article Presentations – VA data*
SAS Lab

Mar. 15
Measurement and analytic strategies with administrative data I - propensity scores
*Student Article Presentations – SEER-Medicare data*
SAS Lab

Mar. 22
Medicaid, costs and linkage to survey data
Derek Brown, PhD
Georg Warren Brown School of Social Work
*Student Article presentations – propensity scores*
SAS Lab

Mar. 29
Measurement and analytic strategies with administrative data II - instrumental variables, hierarchical models
*Student Article Presentations – Medicaid data*
SAS Lab

Apr. 5
Pharmacoepidemiology
Anne Mobley Butler, MPH, PhD
*Student Article Presentations – analytic methods*
SAS Lab
**Apr. 12**  
Other sources of administrative data – MEPS, National Hospital Discharge Survey, National Ambulatory Medical Care Survey  
*Recommended Articles:*  
*Student Article presentations – pharmacoepidemiology*  
SAS Lab – work on final project

**Apr. 19**  
SAS – work on final project

**Apr. 26**  
*Student presentations of final project*

**May 3**  
*Student presentations of final project*