

INLS-725 Electronic Health Records (aka CHIP-725).

Randall Blanco

Thursdays 7:00PM – 8:30PM

Virtual Format (Zoom Class)

Carolina Health Informatics Program (CHIP)

University of North Carolina at Chapel Hill

Course Description

Healthcare has changed dramatically in the last few years whereby the use of digital tools and platforms is no longer an option but a basic requirement to offer optimal services to patients and support the day-to-day operations of core service units (including financial and administrative). A key driver has been the move toward an analytics-anchored organization, often referred to as the learning health system, which implies a sustained development of an organization based on smart use of evidence across full-range of the care organization. A basic pre-requisite for evolving toward a learning organization is comprehensive, continuous and accurate data collection, and transforming the data to actions that match best practices and guidelines.

Electronic Health Record (EHR) systems fit the latter milieu in a critical manner, as they are the principal tools health organizations rely on to collect data and support evidence-based care services.

Beyond supporting primary services in day-to-day care settings, the data platform a modern EHR provides also can directly support interactions with patients, through the patient portal, and interfacing with a wide variety of wearable devices and tools that can collect patient-reported-data and outcomes. Social determinants of health outcome (SDHO) data are increasingly becoming critical to determining health conditions, assist providers to improve diagnosis and treatments, and help payors in predicting care costs and managing care plans.

EHR systems are also becoming important to long-term care quality assessments, refining enterprise-scale care provision approaches to ensure a good balance in workload, and optimizing the care so that patients receive the best care at the right time. EHRs are also becoming a powerful tool to ensure appropriate shift-in-care or care handoffs when a large group of providers is involved -- driving proper care coordination. Post-discharge, tracking of patients and compliance also demand a good interfacing with the base EHR platform used by the health care organization. As care payment models evolve, the reliance on care quality data and compliance become even more important – particularly at the cohort and population health levels.

Finally, a major secondary use of EHR data now is support for advanced biomedical research and translational projects that help learning health organization remain at the forefront of patient care.

In this class, we will focus on EHR as a comprehensive platform to support best-in-class evidence-based care and as the core component for big data analytics to help the care organization adapt and transform itself into a learning organization. We will focus on a large number of health data architectures, data standards, quality assessment, and workflow methods. A key aspect of the course is a project that involves an in-depth focus on an EHR topic.

Objectives include learning about the following areas and engaging in related activities:

EHR systems data architectures, data structures, and system use work-flows

Data management, data warehouses, and analytics platforms

Clinical decision support and link to evidence-based care

Secondary use of data, quality assessment and improvement, and research use of data

Governance and medical data security

Practical experience with EHR tools and applications.

Course Requirements:**45% Project (Group Effort)**

- 5% Topic Selection & Initial Project Presentation
- 10% Project Document, Draft version
- 10% Final Project Presentation
- 20% Project Document, Final version

35% Take-home final exam**20% Class/Forum Participation****Grading:**Grade Range

- H** 95-100
- P** 80-94
- L** 70-79
- F** 69 or below.

Honor Code:

All students are expected to follow general classroom decorum and respect the rights of everyone to have a safe and collegial environment for learning. Violations of general academic practices and norms will not be tolerated. Please refer to the Carolina Honor system to learn more about basic academic expectations at UNC at Chapel Hill:

<https://studentconduct.unc.edu/honor-system>

Do not hesitate to contact the instructor if you have any questions about the honor system and related matters.

Required Textbook:

Electronic Health Records: Understanding and Using Computerized Medical Records, Third Edition; Gartee, R; ISBN-13: 978-0-13-425750-1.

Required readings, and videos, for each class are listed on **SAKAI**.

Additional recommended books:

Secondary Analysis of Electronic Health Records; MIT Critical Data; ISBN-13: 978-3-319-43740-8.

Good Charts; Berinato, S; Harvard Business Review Press; ISBN-13: 978-1-63369-070-7.

Good Charts – Work Book; Berinato, S; Harvard Business Review Press; ISBN-13: 978-1-63369-617-4.

Fundamentals of Database Systems; Navathe, S and Elmasri, R; ISBN-13: 978-0-13608-620-8.

Course Outline & Calendar:

Class 1, Jan 21:

Introduction to the class, and overall course structure.

Review of important dates, exam, assignments, and project requirements.

Class 2, Jan 28:

EHR Ecosystem.

EHR Key Components.

** Topic selected, and groups formed – before class.

Class 3, Feb 04:

EHR History.

EHR Data Formats, Coding Systems, and Health Information Exchange (HIE).

Class 4, Feb 11:
EHR Privacy and Security.
Epic in Playground – DEMO.

Class 5, Feb 18:
Initial Project Presentations.

Class 6, Feb 25:
Initial Project Presentations.

Class 7, Mar 04:
EHR Data Sources & Data Reporting.
Epic Reporting – DEMO.
** Project Document, Draft version – is due at Noon.

Class 8, Mar 11:
** NO CLASS **
UNC Student Wellness Day.

Class 9, Mar 18:
Relational Model & Databases, Data Warehouses, and SQL.
SQL – DEMO.

Class 10, Mar 25:
Data Governance, and Data Visualization.
Tableau – DEMO.

Class 11, Apr 01:
Analytics.
** Guest **

Class 12, Apr 08:
Final Presentations.

Class 13, Apr 15:
Final Presentations.

Class 14: Apr 22:
EHR Data Quality.
Integration.
** Project Document, Final version – is due at Noon.

Class 15: Apr 29:
Review prior Final Exam.
** Guest **

Fri Apr 30: Final Exam available ON-LINE at Noon.
Sat May 08: Final Exam is due at Noon.

Contact Information:

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