Digital Transformation of Healthcare

Course Overview

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Center for Health Data Innovations

Digital Transformation of Healthcare

- Healthcare Informatics
  - The management and use of patient healthcare information driven by insights gained using health information technology
  - The goal is to provide higher quality care (lower cost, greater availability, new healthcare opportunities) to our patients
- Course Objectives
  - Design healthcare informatics projects
  - Develop questions answerable by current systems
  - Estimate the value of a project prior to its implementation
  - Evaluate results from research, economic, and institutional stakeholder perspectives

Course Overview

- Lecture format
  - Each class will focus on a specific part of the pipeline
  - Explore theoretical constructs through discussion and small group work
  - Compare with practical implementations
- Final Project
  - Teams of X students will present an informatics project to the class at the last lecture
- Grading
  - Class is Pass/Fail
  - Grade is based on participation and final project
- Course Leaders
  - Michoel Snow - msnow1@montefiore.org
  - Glen Ferguson - glfergus@montefiore.org

Lecture Schedule

1. Overview and Introduction to pipeline
2. Clinical Decision Support
3. Machine Learning Models
4. Evaluating Predictions
5. Mobile Health/IOT
6. Cohort Selection
7. Healthcare Economics
8. Administrative Healthcare Databases
9. Ethics of Healthcare Informatics
10. Exploratory Analysis
11. (A Gentle) Deeper Dive into Neural Networks
12. Presentations

Any Questions

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Objectives

After this lecture students will be able to

- Describe the different phases of a healthcare informatics project
- Diagram an informatics project as a pipeline

Metastatic Epidural Spinal Cord Compression

- Overview
  - Occurs in 2% to 5% of all cancer patients
  - Cord compression is the first manifestation in about 20% of patients
  - Survival is generally less than 6 months
  - Prognosis negatively correlates with severity of presenting symptoms
- Diagnosis
  - Clinical Findings + Imaging (MRI or CT)
- Treatment
  - Surgery
  - Radiation therapy

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Let's build our own pipeline for spinal cord compression

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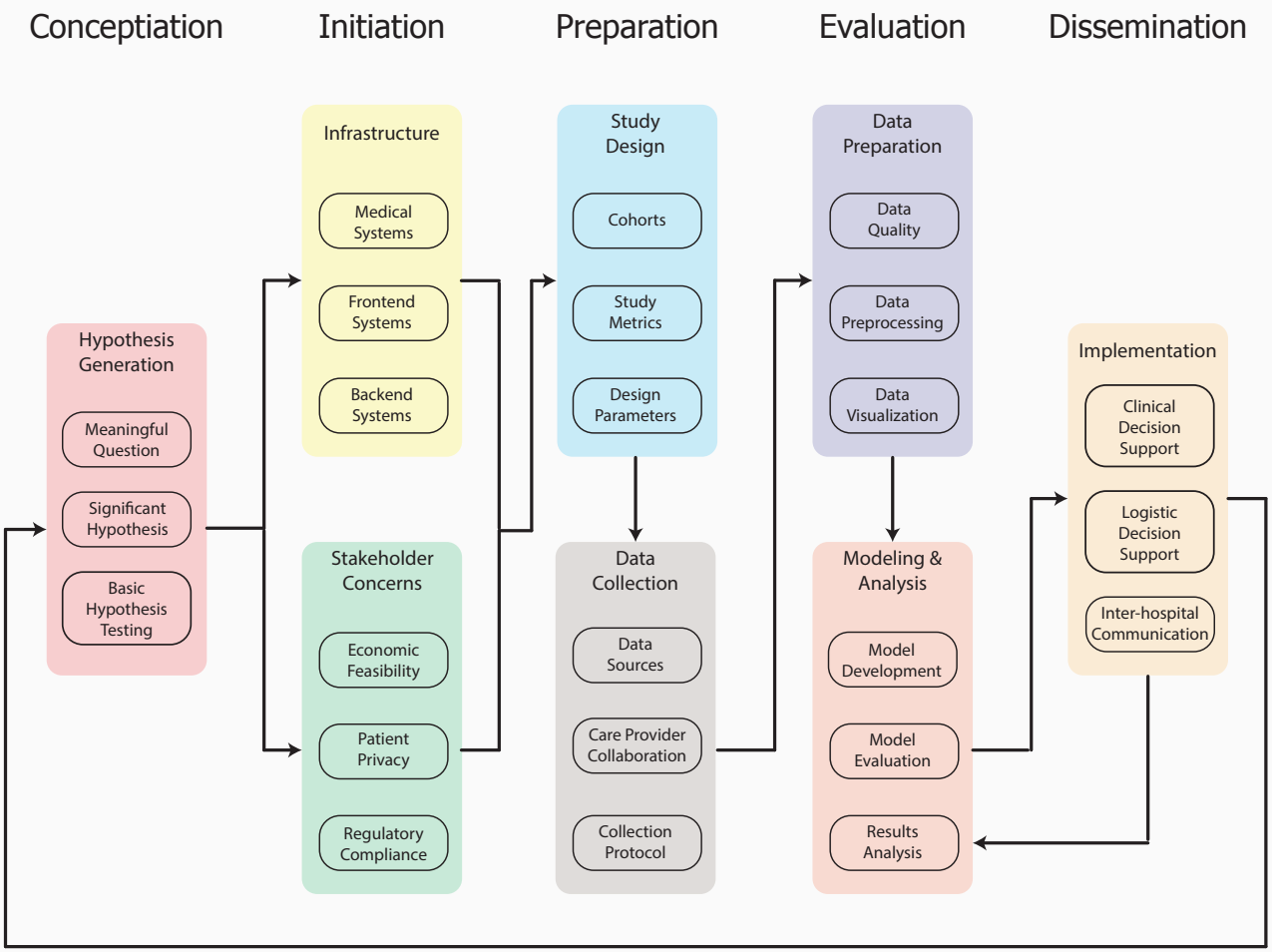
Let's build our own pipeline for spinal cord compression

- First let's talk about the 4 to 5 basic steps in our pipeline, and then we'll break each step down into 1 to 3 sub-steps, and then discuss the components of the individual sub-steps. The first two parts we'll do together as a group and the last part you will work on in teams

Healthcare Informatics Pipeline



Metastatic Epidural Spinal Cord Compression

Initial Steps

- Question
  - Question
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  - Survival is generally less than 6 months
  - Prognosis negatively correlates with severity of presenting symptoms
- Exploratory Analysis
  - Clinical Findings
  - Imaging (MRI or CT)