

Project Proposal

Spyridon Ganas

Executive Summary

The All-Payer Claims Database (APCD) is a data warehouse containing medical records for approximately six million Massachusetts residents. The state government created this resource to allow “health care providers, health plans, researchers and others to address a wide variety of issues, including price variation, population health and quality measurement.”ⁱ

This project will create an online course titled “An Introduction to the APCD for Health Care Researchers”. The goal of this course is to encourage research by:

- Explaining the contents of the APCD
- Describing the process of requesting APCD data
- Highlighting past research conducted with this database

Motivation and Context

The Center for Health Information and Analysis (CHIA) is an independent agency of the Massachusetts state government.

“CHIA's mission is to be the agency of record for Massachusetts health care information, to responsibly steward sensitive and confidential data, and to objectively report reliable and meaningful information about the quality, affordability, utilization, access, and outcomes of the Massachusetts health care system.”ⁱⁱ

A core component of this mission is working with external researchers to derive new knowledge from the Massachusetts All-Payer Claims Database (APCD). The APCD is one of the largest, cleanest and best-supported sources of medical data currently available to researchers.

This outstanding data source is significantly underutilized; in 2015, only 15 research projects requested APCD data. This is due to either a lack of awareness about the available data, or a belief that the data release process is too difficult to navigate.

Existing Resources

CHIA currently has a website that includes PDFs documenting the APCD data. The organization also employs a full-time “Manager of User Support”, who provides expert guidance to researchers who request APCD data.

Existing documentation assumes familiarity with medical research terminology. Interaction with CHIA staff requires an active data access request. Neither resource is particularly useful to inexperienced researchers, or researchers who are in the earliest stages of developing a research proposal.

Proposed Tool

This project will create an online course titled “An Introduction to the APCD for Health Care Researchers”.

This training will teach researchers about the available data and the process of working with CHIA. Key goals of this training program are:

- Provide an overview of the data available in the APCD.
- Teach terminology related to the data in the APCD.
- Serve as “marketing” for the APCD, helping researcher become more aware of the data and resources that are available.

This online course will consist of a website containing brief (5 to 10 minute) lectures. These lectures will discuss key knowledge required to use APCD data. Interviews with researcher who have successfully used APCD data, as well as interview with CHIA experts, may be included on this site. The site will also link to existing CHIA resources and examples of past APCD research.

Technical Description of the Tool

- The website will be designed using standard HTML5.
 - Formatting will be done using the Bootstrap CSS library.
 - Bootstrap will insure this site is “mobile-friendly”
- GitHub will be used to store the source code.
- GitHub Pages will be used to host the website.
- Course content will consist of narrated PowerPoint presentations that have been converted to video files.
 - Video files will be stored on and distributed using YouTube.

Tasks and Schedule

This project has been scope to require approximately 100 hours of effort. The first 20 hours of the project work will focus on setting up a basic website and developing templates. The last 20 hours have been reserved for writing the final paper, creating the final presentation, and finalizing the website.

A majority of the implementation part of this project (the remaining 60 hours) will focus on developing course content. Most of this content will be short video lectures (less than 10 minutes per video). PowerPoint will be used to create narrated presentations for each topic listed below. These presentations will be saved as video files and uploaded to YouTube.

Due to the complexity of the topics, I expect to spend approximately two hours developing each video (90 minutes of research, plus 30 minutes to create and narrated the presentation). Assuming this estimate is accurate, I anticipate creating approximately 30 video lectures. The topics for these lectures are listed in the detailed schedule below.

- **Project Proposal Submitted:** February 22, 2016
 - This marks the end of the planning phase of the project and the beginning of the implementation phase.

- **Intermediate Milestone 1:** March 6, 2016
 - The first phase of this project will focus on creating a framework for the project
 - Set up a basic, but functional, website
 - Create a YouTube account to store the training videos
 - Create a PowerPoint template for the video lectures
 - Finalize the list of topics for the videos
 - **Deliverable:** An operational website containing one professional-quality video lecture.

- **Intermediate Milestone 2:** March 20, 2016
 - Create videos covering introduction topics
 - The History of the Massachusetts APCD
 - Member Eligibility overview
 - Medical Claims overview
 - Pharmacy claims overview
 - Dental Claims overview
 - Product overview
 - Provider overview
 - ACA Risk Adjustment and the ACA
 - How does the APCD protect PHI?
 - What is the GIC and how do they use APCD data?
 - Create a video explaining how researchers request access to APCD data
 - **Deliverable:** An updated website containing at least 10 videos.

- **Intermediate Milestone 3:** April 3, 2016
 - Create videos that cover basic medical research terminology
 - What is a Member Month?
 - What is a provider?
 - What is the difference between fully insures and self-insured?
 - What are the different types of insurance (ME003)ⁱⁱⁱ
 - What is the difference between primary and secondary insurance?
 - What are the different types of coverage (ME029)
 - What are the different insurance lines of business?
 - What are the different types of Medicare (ME081)

- What are deductibles, co-pays, coinsurance, etc.
 - What is the difference between a claim and a claim line?
 - What do all the different dollar amounts on a claim mean?
- **Deliverable:** An updated website containing at least 20 videos.
- **Intermediate Milestone 4:** April 17, 2016
 - Create a video explaining APCD-specific topics and other advanced concepts
 - How can you link data in different APCD tables?
 - What are diagnosis codes, E-codes, ICD9 , ICD10 and ICD-CM codes?
 - What are procedure codes and revenue codes? What are procedure modifiers?
 - What is an actuarial values and metal level?
 - How are inpatient admissions recording in the APCD? What are the different MC020 values and what do they mean?
 - What is a discharge status (MC023)
 - What is a DRG and other claim groupers?
 - What is a capitated claim and how is it handled in the APCD?
 - How are re-adjudicated and backed-out claims handled?
 - What is a condition code? (MC179)
 - What are the different types of medical facilities?
 - What are the different ways of identifying providers and their HCOs?
 - **Deliverable:** An updated website containing at least 30 videos.
- **Lower Priority Tasks:** If feasible and if time is available
 - A library website linking to past research based on APCD data
 - Video interviews with researchers who have used the APCD data
 - A data dictionary listing all the data fields available in the APCD.
- **Final Deadline:** May 1, 2016
 - **Deliverable:** Final version of the website containing at least 10 videos.
 - **Deliverable:** Final presentation
 - **Deliverable:** Final paper

I decided to use five two-week long “sprints” to organize my calendar. The course content I will be developing neatly separated itself into five sections, so this seemed to be the best way to organize my plan. The large number of small sub-task should make it easy for me to document my progress in the weekly status reports.

Concluding Remarks

I anticipate continuing to work on this course after the completion of the Educational Technology class. So a key goal of this project is to develop a prototype that convinces executives at the Center for Health Information and Analysis to invest financial and staff resources in the future iterations of this project.

Toward that end, I've scaled down the scope of my project substantially over the past few weeks. I am now confident that I can produce high-quality content for each of the topics listed above.

I've also adjusted the scope of my project to account for "political" issues. For example, CHIA management has been unable to decide if a data dictionary should be publically available, or internal-use-only. I've also redesigned this project so it can be completed with no support from the organization (in case I leave the organization).

Overall, I feel confident that I can complete the tasks listed above and produce an online course that will be of substantial value to researchers who wish to learn about the APCD data.

ⁱ <http://www.chiamass.gov/ma-apcd/>

ⁱⁱ <http://www.chiamass.gov/mission-and-history/>

ⁱⁱⁱ Values like (ME003) or (MC023) refer to specific columns in the APCD. For example, ME003 is the 3rd field in the Member Eligibility table, while MC023 is the 23rd field in the Medical Claims table. A full list of these values is available in the APCD submission guidelines: <http://www.chiamass.gov/apcd-data-submission-guides>