

Capstone 1: Gaps in Healthcare Education Across the United States

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The problem:

On average, physicians in the United States see 20 patients in a usual work day. Researchers have found that medical providers in the United States see each patient for a [median time of 16 minutes](#), allocating a median time of 5 minutes for discussion about the major topic of concern. Within that time, the medical provider is expected to build rapport with the patient, understand the health problem, diagnose, and prescribe a treatment. This leaves a small window of time for patient education, and for the patient to ask questions.

So what do people do when they need more information about a health concern - they Google it of course! While Google can provide great resources and general information, it does not always provide credible information and many times will confuse people with conflicting information across various websites. Serious health concerns should be managed by a medical professional who is able to identify the individual's unique circumstances and health background.

Hospitals, clinics, wellness and nutrition coaches could all benefit from understanding what health information people are seeking online. The results from this study could potentially serve as evidence for the need and addition of patient education programs by state and region.

Datasets:

The dataset containing counts of Google health searches in the metropolitan cities from 2005-2017 is available on Kaggle:

<https://www.kaggle.com/GoogleNewsLab/health-searches-us-county/data>

The National Center for Health Statistics (NCHS) offers public access to the National Ambulatory Medical Care Survey (NAMCS; 1993-2016) and National Hospital Ambulatory Medical Care Survey (NHAMCS; 1992-2017) datasets which contain information from patient surveys including practice type and size, time spent at office visit, PCP versus non-PCP visit, physician specialty, reason for visit, diagnosis, health education and counseling service types provided or ordered, medical provider type.

https://www.cdc.gov/nchs/ahcd/datasets_documentation_related.htm

Methods:

- 1) Analyze the data from Google searches on health problems to understand the gaps in patient education. Create graphs and maps of the most searched health topics on Google by state and region (Northeast, South, Midwest, West, and Pacific).
- 2) Use statistical analysis to see if the Google search data correlates to any of the NCHS patient survey data.
- 3) Determine which factors from the NCHS patient survey data could be used as predictors for a high volume of Google health searches.
- 4) (Optional - if applicable) Create a model to predict patient education needs by location or region, based off of NCHS predictors.

Deliverables:

At the completion of this Capstone, a paper entailing the analysis and conclusions will be written and published in a blog. A Jupyter notebook to share code publicly will be available on GitHub.