

Sprint 1 - Practicum Project Proposal

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1 AREAS OF FOCUS

My area of focus will be primarily on General Health and the the primary area of focus will be centered on Chronic Illnesses. I will be focusing on the secondary area of focus of risk and how risk correlates and interacts with chronic illnesses.

2 BACKGROUND AND SIGNIFICANCE

Chronic diseases make up the majority cause of death and is one of the largest and most burdensome health epidemic in the United States. According to the CDC, "7 of the 10 leading causes of death in the United States are chronic diseases, and almost 50 percent of Americans live with at least one chronic illness.((CDC, 2013)) According to the World Health Organization, chronic diseases are well known to have increased risk with unhealthy diets, physical inactivity, tobacco use, excessive alcohol use, childhood risk, risk accumulation, underlying determinants, and poverty.

With such a large death toll being attributed to chronic diseases, it is only natural to highlight its significance in the healthcare world and to shine a light on something so impactful and detrimental to society and individuals.

3 PROBLEM

As is stated earlier, chronic diseases are highly correlated with unhealthy diets, physical inactivity, tobacco use, excessive alcohol use, childhood risk, risk accumulation, underlying determinants, poverty and much more. Many people are ignorant to these facts and live their daily lives without the proper education, knowledge and self-awareness to gauge the risk of chronic diseases on their self. Furthermore, a large population are not fully aware of the dangers and consequences that contracting a chronic disease can have on their life. According to the CDC "In 2019 nearly 14 of every 100 U.S. adults aged 18 years or older currently smoked cigarettes."((CDC, 2020))

The United States also suffers from an obesity epidemic. "Studies show that childhood obesity has hit epidemic proportions over the last few decades. The

main culprits, according to experts: high-fat foods, sodas, and too little exercise.((Woolston, 2020)) "In 2011, new USDA standards tried to reduce the amount of white potatoes served in school lunches, but potato farmers successfully lobbied against them. And when dried sweetened cranberries were deemed too sugary, cranberry growers did the same."(Eber, 2019) "After the USDA tried to close a loophole allowing schools to count 2 tablespoons of tomato paste on a pizza slice as an entire serving of vegetables, a group...backed by major food conglomerates such as Conagra and Schwan's, vigorously lobbied against the measure in 2011. Their campaign was successful."(Eber, 2019) The food and beverage industry consisting of Big Soda spent 22.3 million dollars in 2018 on lobbying" with 8.6 million dollars coming from Coca-Cola and PepsiCo alone.(Szabo, 2018)

Healthcare is taught all too little in school, school lunches are highly lobbied in favor of unhealthy foods, and many adults turn to smoking and drinking that is a result of that poor education and ignorance.

3.1 Proposed Solution or Idea

The proposed solution consists of a web application that reads in patient data and outputs the risk of contracting certain types of chronic diseases. This data can be inputted such as weight, height, bmi, history of substances and other factors or taken from patient data using FHIR. The application will then calculate a risk factor or ratio and compare it with the aggregate of the general public. This can give insight into how at risk the patient may be and the spectrum in which they are categorized in.

For the purpose of this project risks that are not controllable such as childhood risk, risk accumulation, underlying determinants, and poverty will be excluded as it will have low relevance, spark no inspiration for the users of the application, and have no usefulness. This solution will be targeted toward the general public and the goal is equip the users with information about themselves, the general health of the public and where they fit in, and inspire them to make changes in their lives as preventive measures to these chronic diseases.

4 COMPLEXITY OR EFFORT

The complexity of the application will be separated into three parts. The first would be the front end facing application that will take in input, and give output

in the form of numbers, data and graphs. The second will be the data aggregation and analysis system that will take data in from APIs and compute statistical analysis on it. The third system will be facing 3rd party APIs and use FHIR.

Patient data is highly sensitive and will require a authentication and authorization to the data. This requires a some login feature and 3rd party authentication system. Another way is for the patient to manually input data in the front end and used that data to compute. Security will rely on tools such as the cloud where the application will be hosted on such as Azure.

Due to the scope of this project, I will focus on taking in manually inputted patient data rather than sensitive stored patient data that could increase the privacy risk.

5 TENTATIVE TEAM MEMBERS AND ROLES

The team will consist of myself.

6 REFERENCES

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- [5] Woolston, Chris (Oct. 2020). "What's Wrong With the American Diet?" In: URL: <https://consumer.healthday.com/encyclopedia/weight-control-39/obesity-health-news-505/what-s-wrong-with-the-american-diet-644659.html>.