Thomas Ehret

CS519

Sp23

Dr Cao

Project Part 2

I am currently an employee of the California Polytechnic Humboldt Student Health and Wellbeing Center. Wherein I work with clinical informatics and logic based expert systems for clinical decision making. During the COVID19 pandemic we faced many challenges not the least of which was logistical shortfalls of laboratory tests for common Upper Respiratory Illness (URI), Influenza Like Illness (ILI), and Group A beta-hemolytic Streptococcus (GABHS).

Sore throat is one of the most common reasons for visits to primary care providers, with severe cases routinely presenting to Emergency Departments and Urgent Care centers. While most patients with sore throat have an infectious cause (pharyngitis), fewer than 20 percent have a clear indication for antibiotic therapy (GABHS). The issue at hand is that outside COVID19 the previously mentioned illnesses share similar clinical symptoms.

For much of 2021-2022, GABHS rapid tests were not available or had manufacturing deficiencies that placed further testing replication burdens on already overstretched clinical staff. As a “lessons learned” and proof of concept approach I would like to try to create a simple binary classification system that can be used to assist differential diagnosis in the event a positive GABHS laboratory diagnosis can’t be made (i.e. no testing supplies).

Perhaps the biggest challenge with this project will be calculating the weights of the features. This is almost certainly because real-world clinical decisions are a complex system that has many factors outside of statistical morbidity variables.

Because of liability issues this system will not initially be used by medical practitioners at our clinic. However, it would provide an interesting insight into clinical decision making and point of contact heuristics that practitioners use on a day-to-day basis.