Since the outbreak of COVID, our school has attached great importance to public health. While influenza is an important cause of morbidity and mortality globally. The elderly is among the groups at particular risk of severe influenza infections, as most of the influenza-related death occurs in the adults aged over 65. Influenza vaccination is the most effective way to prevent influenza infection and serious influenza-related complications. However, the influenza vaccination coverage rates (VCR) vary greatly by country which professors thought was worthy of study.

Because of my ability to use Python to provide data cleansing, and my experience using and modifying models, the leader professor recruited me, an undergraduate, to the research team to serve as a basic researcher. I started from literature search, reading, sorting and reporting, and widely read varies of vaccine-related literature. Find that, in China, VCR for elderly remains relatively low. Besides, flu VCR is subject to substantial variance by region in China. And also, the average number of doses of influenza vaccine for sale by Chinese province ranged from 5 to 108 per 1000 people, which is likely to be associated with regional levels of economic development and the fact that influenza vaccine is not covered by the national immunization program. In most cities of China, with a few exceptions such as Ningbo and Beijing, citizens must pay an out-of-pocket fee for their vaccinations. The lack of convenient access to vaccines may also affect the Chinese vaccination uptake rates as only Points of Vaccination (POV) clinics located in community health service centers are officially authorized to provide immunization services in this country.

Of course, other factors potentially contributing to the low rate of uptake of influenza vaccine in China are lack of awareness of the availability of the vaccine, lack of awareness of the benefits of influenza vaccination, and concerns over reported adverse effects of influenza vaccine due to misreporting of perceptions of vaccination. Currently, there is still lack of studies on a comprehensive description of those factors associated with uptake of influenza vaccine in the real-world settings.

Moreover, our team see that it is of great concerns whether the vaccinating will improve the health utilities for elderly who are at higher health care costs. Where cost-effectiveness studies aim to evaluate the incremental cost per health gain. Since 2020, a trivalent inactivated influenza vaccine has been provided free of charge to older adults aged 70 and over in Ningbo. Thus, our team has built the decision tree model to estimate the cost-effectiveness of the vaccination against medically attended influenza in Ningbo using the health information data from Yinzhou, a district of Ningbo during the 2020-2021 seasons, under the suggestions from leader professor.

At present, we have contacted with the database, downloaded data by remote call, and conducted data analysis on the given platform. I was mainly responsible for downloading, sorting and cleaning data, as well as various important parameters required by the model. Then adjust the relevant model parameters according to the performance of it. Based on the results of the model calculation, we have submitted the preliminary results to the sponsor for evaluation, and based on the feedback, further cleansing of the data and further modification of the model.

During this period, I participated in the programming and writing training of the project team and regularly attended weekly meetings. I boarded my knowledge the basic programming skills of R and STATA, as well as the skills of literature search and literature sorting. I have also presented a share of basic Python programming and file/variable naming rules and tricks.

In the future, we hope that our group can complete an article to be published, so that more people who are interested in this can read our results, and conduct deeper research and discovery on our basis.