HIV Resource Locator for Citizens in Hawaii

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ABSTRACT

This report describes the creation and execution of our GUI application (see ***Figure 1***) using an SQL database (see ***Figure 3***). The database created included 51 centers in Hawaii. The scope is small because all of the center information needed to be manually inputted in addition to the abilities of the devices running the code being unable to run such large amounts of data. The choice of Hawaii was used to encapsulate a smaller scope of the general population. With Hawaii being made up of multiple islands as well as having a high number of centers for the overall area of the state, it was an optimal choice to use for our database. The code developed in this project is the starting point for a much larger project. In the future, the scope of this project could be broadened to include additional states or locations worldwide.

1 INTRODUCTION

HIV is a virus that damages human immune cells that help the body fight infection, that makes a person much more vulnerable to contracting diseases in the future [4]. It is primarily spread through the contact of specific bodily fluids in most commonly unprotected sex or sharing injection equipment for drugs. There is no cure that is known for HIV and people who have contracted it will have it for life. However, there are many known treatments that people utilize to be able to comfortably live with it. This treatment is in the form of medicine known as antiretroviral therapy and it can greatly reduce the amount of HIV in the bloodstream and allows for people to live with little to no side effects [3]. Also, it prevents people from further transmitting the virus to other people through the forms previously stated. However, in order for people to get this type of treatment or to be diagnosed in general they must be given access to the correct resources.

Approximately 1.2 million people in the United States suffer from HIV and more than 13% of that population do not even know that they have it. HIV diagnoses are not evenly distributed across the country, and it is much more difficult in some regions of the United States than others. In our code specifically, we focused on HIV treatment centers and cases in Hawaii. Currently as of 2020, there are approximately 2,500 people who suffer from HIV, with 51 people being newly diagnosed [3]. In the database we have selected from the National Prevention Information Network it states that there are only 51 available resource centers who suffer from HIV. Since there is a large number of people who suffer from HIV in Hawaii, and so few resource centers where people can be diagnosed and treated, a resource that allows people to look up their closest center would be helpful to the people of Hawaii. Related work includes websites with HIV resources and clinical information websites for reference.

2 DATASET

The data to be used in this application comes from the National Prevention Information Network on the CDC website [1]. This data will be placed in an SQL database (see ***Figure 3***).

3 METHODS AND IMPLEMENTATION

In order for us to create a resource that allows for people in Hawaii to seek help with any questions or needs regarding HIV we first found the data of all the centers in the United States in the National Prevention Information Network on the CDC website [1]. Then, we had chosen Hawaii to investigate further and manually entered all of the HIV resource center information provided into an SQL database. This information included the name of the center, phone number, zip code, and the treatment type that is offered at the center. We then referred to the database using SQL queries and coded the submit button on the website's interface to use the zip code and desired centers fields to come up with the closest matches to the person's desired fields. These were all coded through the MATLAB App Designer.

4 EXPERIMENTS AND RESULTS

A sample input for this application is Treatment Type: Testing, Zip code: 96720, and Number of Desired Results: 5. See *Figure 2* for the sample output.
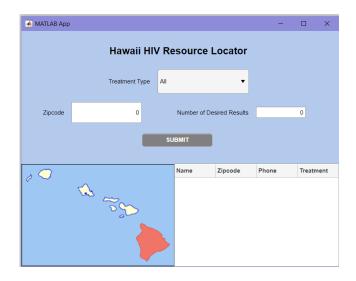

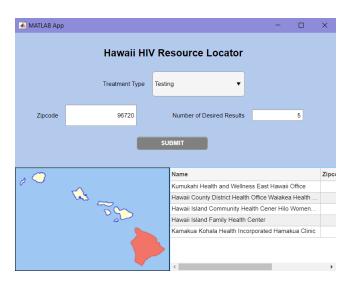**Figure 1:** GUI (before input). This is what the user will see when they open up the application.

Figure 2: GUI output (after sample input). This is what the user will see when they input the sample values and hit submit.

	Name	Zipcode	Phone	Treatment
	Filter	Filter	Filter	Filter
1	Hawaii State Department of Health ...	96816	8087339281	Testing
2	Queens Health Systems Molokai ...	96748	8085533145	All
3	Hawaii Island Community Health ...	96720	8083333600	Treatment
4	Hawaii Island Community Health ...	96778	8083333600	Treatment
5	Hawaii Island Community Health ...	96772	8083333600	All
6	Hawaii Island Community Health ...	96749	8083333600	Treatment
7	Kumukahi Health and Wellness West ...	96740	8083318177	Testing
8	Kumukahi Health and Wellness East ...	96720	8089828800	Testing
9	Hawaii State Department of Health ...	96817	8088325731	Testing
10	State of Hawaii Department of Healt...	96766	8082413495	Treatment
11	Waikiki Health Youth Outreach Clinic ...	96815	8085378297	Treatment
12	Hawaii State Department of Health ...	96816	8087339010	All
13	Kokua Kalihi Valley Comprehensive ...	96819	8087919400	Testing
14	Hawaii Island Community Health ...	96738	8087695160	Treatment
15	Hawaii Island Community Health ...	96740	8083265629	All
16	Waikiki Health Makahiki Clinic	96826	8089224787	Testing
17	Waikiki Health Ohua Clinic	96815	8089224787	Testing
18	Malama Pono Health Services	96766	8082469577	All
19	Waianae Coast Comprehensive Healt...	96797	8086973888	Treatment

Figure 3: HIV database. This is what the database looks like.

5 DISCUSSION

For the scope of Hawaii, the tool functioned well. The user is able to input their current zip code, desired number of center locations nearby that zip code, and the treatment type (testing, treatment, or all) which will bring up the desired HIV treatment center locations. A good addition to this GUI would be red pins that were displayed on the map to show all of the locations in a geographical setting as opposed to purely text. This was unachievable, in this design, as 51 pins on such a small map would be hard to see, and not as useful to the user as google would be once they found the name of the treatment center via this GUI. This GUI is to be used as a guide for more information. Another useful addition to this GUI would be a field where the user can enter the maximum distance (in miles) that they would like to travel to reach their destination. This was unachievable because the code and methods that calculated distances between zip codes was limited and hard to find. However, with more time, better devices to run large amounts of data, and more resources, this tool can easily be expanded to a more complex, more useful tool. Although not super complex, this current tool will allow the user to receive the treatment center names and phone numbers as paths to get more information specific to them. As stated, prior, there is a large population of people who could use this tool as a way of looking

for treatment centers that fit their geographical needs, and if the database were to expand it could assist not only HIV patients in Hawaii, but patients across the United States or worldwide.

6 REFERENCES

[1] Centers for Disease Control and Prevention. (2016, July 28). Databases. Centers for Disease Control and Prevention. Retrieved December 7, 2022, from https://npin.cdc.gov/pages/databases.

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[3] U.S. statistics. HIV.gov. (2022, October 27). Retrieved December 7, 2022, from https://www.hiv.gov/hiv-basics/overview/data-and-trends/statistics

[4] What are HIV and AIDS? HIV.gov. (2022, June 15). Retrieved December 7, 2022, from https://www.hiv.gov/hiv-basics/overview/about-hiv-and-aids/what-are-hiv-and-aids