Remote Health Monitoring Patients with Hypertension

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1 Project summary

Hypertension is a growing issue in the United States - nearly half of the country's adults suffer from the condition ("Facts About Hypertension", 2020). Left untreated, it can cause more severe complications such as heart attack/failure, stroke, kidney disease/failure, etc ("Health Threats From High Blood Pressure", 2016). Fortunately, proper treatment, medical care, and lifestyle changes can control hypertension and minimize risks. Currently, about 76% of hypertension patients have uncontrolled blood pressure status ("Hypertension Prevalence in the U.S.: Million Hearts", 2020). My proposed solution is to create an interface for physicians to monitor their patient's blood pressure outside of the doctor office. Doing so will allow the doctor to nsure their patient's blood pressure is not reaching an alarming stage and ensure that the patient's current treatement plan is working. Recent technology advancements have allowed for reliable bluetooth health monitoring devices - in this case, patients will be using a bluetooth enabled blood pressure monitor.

1.1 Tools and Technologies

- Tableau - display data visualizations
- HTML - build the web app
- CSS - build the web app
- Javascript - build the web app
- Google Sheets - create the data spreadsheet
- Github Pages - hosting the web app

1.2 Data Source

Due to the complexity of hypertension and bluetooth monitoring being new in the healthcare industry, there will be limited data resources. HIPAA laws might also prevent data sources from being available. Given the time constraints of this course, it would be difficult to obtain my own bluetooth blood pressure monitor for this project. Although, it would be a great idea for expanding my research. For this project, I will be creating my own dataset with patient's systolic and diastolic readings inspired by clinical data.

1.3 Diagram

Using my dataset of systolic and diastolic blood pressure measurements for all patients, the data will be used in Tableau to create visual analytics. The data graphs will be shown in the web application for healthcare providers to analyze.

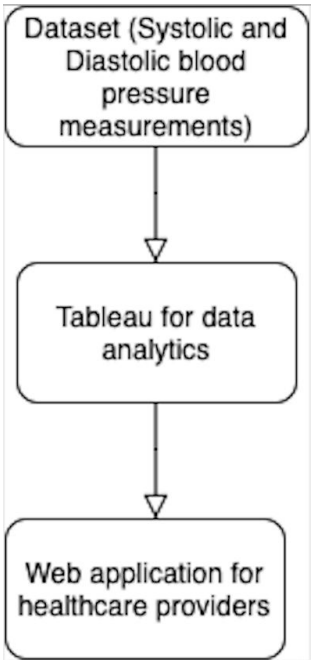


Figure 1—Architecture Diagram. Source: Honya Elfayoumy

1.4 Screen Mockups

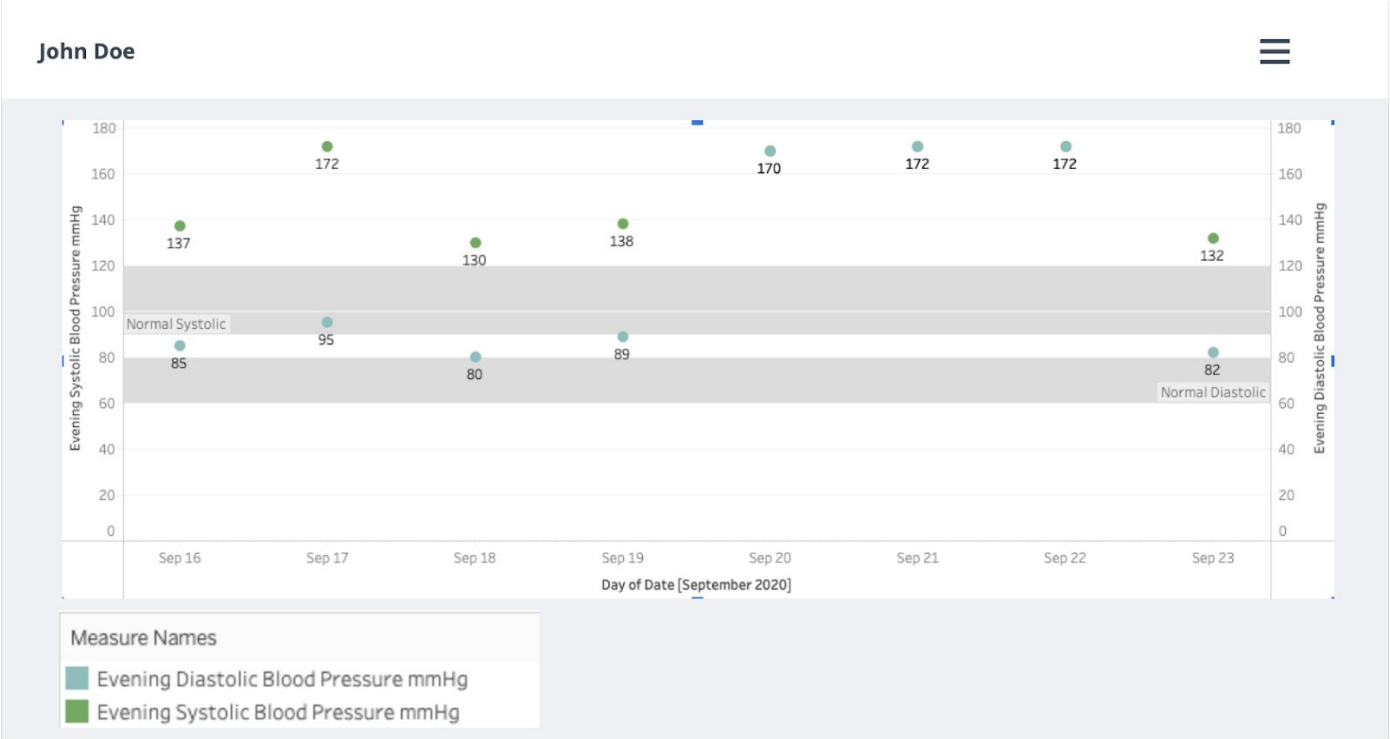
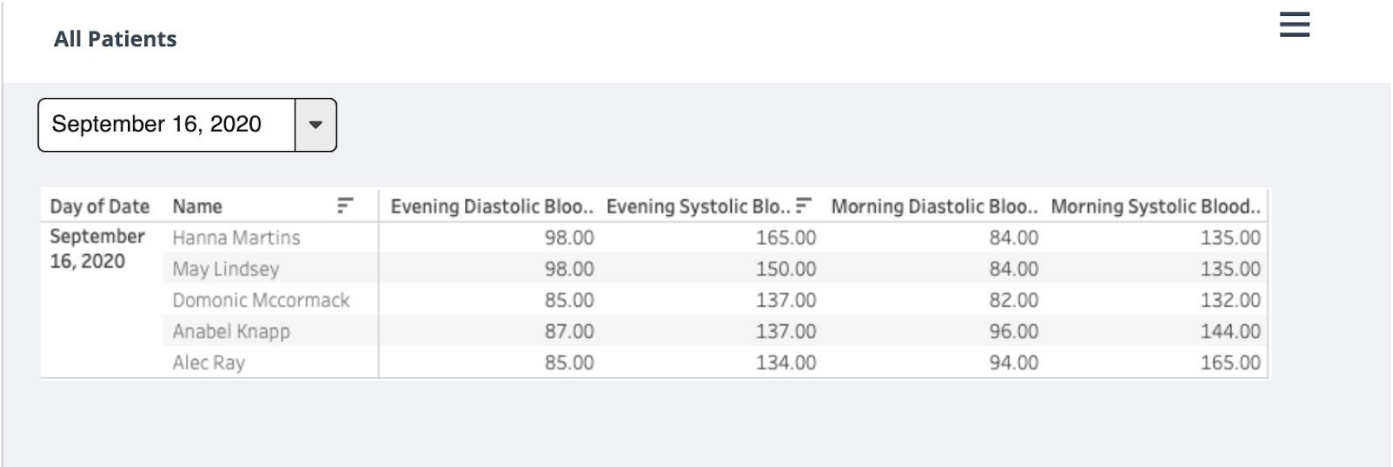


Figure 2—Provider dashboard for patient John Doe. Source: Honya Elfayoumy



Day of Date	Name	Evening Diastolic Bloo..	Evening Systolic Blo..	Morning Diastolic Bloo..	Morning Systolic Blood..
September 16, 2020	Hanna Martins	98.00	165.00	84.00	135.00
	May Lindsey	98.00	150.00	84.00	135.00
	Domonic Mccormack	85.00	137.00	82.00	132.00
	Anabel Knapp	87.00	137.00	96.00	144.00
	Alec Ray	85.00	134.00	94.00	165.00

Figure 3—Provider dashboard for all patients on September 16, 2020. Source: Honya Elfayoumy

2 REFERENCES

1. Facts About Hypertension. (2020, September 08). Retrieved October 11, 2020, from https://www.cdc.gov/bloodpressure/facts.htm
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3. Hypertension Prevalence in the U.S.: Million Hearts®. (2020, February 05). Retrieved September 20, 2020, from https://millionhearts.hhs.gov/data-reports/hypertension-prevalence.html