

# Ethno RX



Shania, Sydney, & Joan

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# General Overview & Purpose

# Who are we working with?

- 1 Patients with chronic diseases who are using herbal supplements for symptom management.
- 2 Primary care physician working with such patients

# Monitoring Process

<b>Objective</b>	To understand patients' ethno-medication usage and symptom management.
<b>Approach</b>	Proactive outreach to patients for data collection.
<b>Data Collected</b>	<ul style="list-style-type: none"><li>● Type of herbal medication used</li><li>● Dosage regimen</li><li>● Symptom assessment</li><li>● Optional: Interest in discussing alternative medication options with their doctor</li></ul>

# Goals

- 1 Provide physicians with a comprehensive resource on ethno-medications to enhance understanding of patient treatments and informed decision-making
- 2 Enable patients to actively manage their health decisions and promote engagement in treatment plans
- 3 Improved patient-doctor communication
- 3 Enhanced patient outcomes through informed treatment decisions

# Expert Interview

Expert: Dr. Hakima Amri  
Co-Director, CAM Graduate Program

## Main Takeaways

Resources	<ul style="list-style-type: none"><li>• Natmed Pro</li><li>• Important to get evidence based research</li><li>• NIH - integrative medicine and dietary supplements</li></ul>
Patient Accessibility	<ul style="list-style-type: none"><li>• Reduce it to simple language.</li><li>• encourage pt to share the information</li><li>• Trust needs to be built</li><li>• Evidence-based</li><li>• Careful with language. ex: “diabetes” vs “blood sugar health”</li></ul>

# Target Users

- Targeting regions that have a high ethnic diversity and predominantly use herbal/folk medicine or people who identify as “naturopathic”
  - Spanish Americans
  - Mexicans
  - Indigenous tribes
  - Africans and African Americans
  - Immigrants groups



# Patient Personas

1. Patient Persona
2. Physician Persona

# Sofia Diaz

## Demographics

**Age:** 58  
**Race:** Mexican  
**Gender:** Female  
**Education:** B.S from USC  
**Occupation:** Elementary school teacher  
**Marital status:** Married  
**Location:** Washington DC  
**Languages:** English & Spanish  
**Hobbies:** cooking, biking, piano  
**Personality:** detail-oriented, warmhearted, hardworking

## Background

Born in Mexico and moved to the San Diego California with her parents and two siblings at age four. Moved to DC 10 years ago for her husbands work.



## Goals

- Manage diabetes symptoms without taking prescribed medication
- Maintain good communication with physician

## Pain Points

- Diagnosed with type 2 diabetes at age 52
- Trouble getting in contact with doctor

## Action Plan

- Prefers to use the herbal medication matarique (also known as Desert Indian bush)
- Monitor diabetes symptoms and adjust treatment plan accordingly

## Technical Experience

- Little experience is with patient portal
- Willing to use new application with user friendly design

# Dr. Roger Highland

## Demographics

**Age:** 34  
**Race:** African American  
**Gender:** Male  
**Education:** M.D UCLA  
**Occupation:** Physician Internal Medicine  
**Marital status:** Married  
**Location:** Washington DC  
**Languages:** English  
**Hobbies:** volleyball, reading  
**Personality:** detail-oriented, warmhearted, hardworking

## Background

Grew up in Prince George's County in Maryland. He moved to California to pursue his medical degree at UCLA. He currently works at an public hospitals where he regular sees patients for general routine check-ups. He works in Washington DC where he meets patients of all backgrounds.



## Goals

- Understand and advocate for patients of all backgrounds
- Provide the best care for his patients not just through medical treatment, but fulfill socio-emotional needs.

## Pain Points

- At Georgetown, his patient demographics are from higher socioeconomic backgrounds and are predominantly Caucasian.

## Action Plan

- Monitor patients utilizing herbal remedies and maintain open communication
- Expand knowledge on alternative medications beyond conventional treatments.

## Technical Experience

- Familiar with various EHR systems
- Tech savvy

# Essential Features

1. Patients
2. Physicians

# Features for Patients



## Dashboard

Patient info

Upcoming and past appointments

To do list (exp when next survey is)



## Weekly Survey

Herbal remedies currently taking

What using remedies for

Symptoms check in

Optional appointment scheduling



## Medications

List of all current prescriptions and herbal medication

Ability to add herbal remedies



## Database

Database to look up herbal remedies by name, issue, or origin

Get info about other names, what it treats, scientific name, drug interactions, side effects (by body system)



## Message Board

Able to message provider and view messages from providers

# Features for Physicians



## Dashboard

Physician sees all their patients

Database

Panel with additional settings: email, care team

Calendar



## Appointments

Displays appointments and meetings for the day

Can change, edit, and cancel appointment

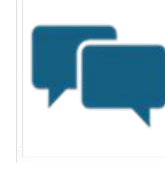
Also accessible by office admin



## Database

Can edit and add more remedies

Upon adding medications, it is sent to GU/Medstar “Integrative Medicine” department for further evaluation



## Message Board

Patient messages and inquiries are sent to physician

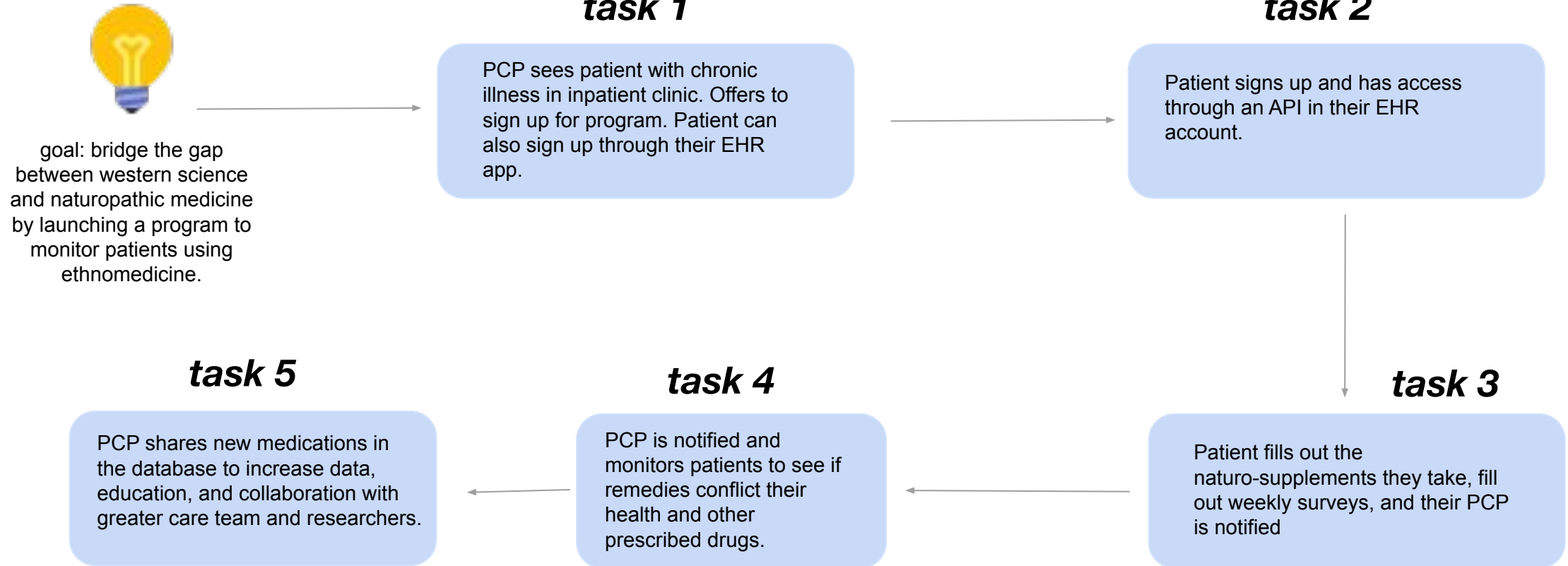
Physician can also receive messages from greater care team and colleagues



## Collaboration

Physician has access to the greater care team and researchers to inquire about folk medicine for their patients’

# Task Analysis: Physician



# Task Analysis: Patient

Goal: Help the Patient Successfully Utilize their EthnoRX application

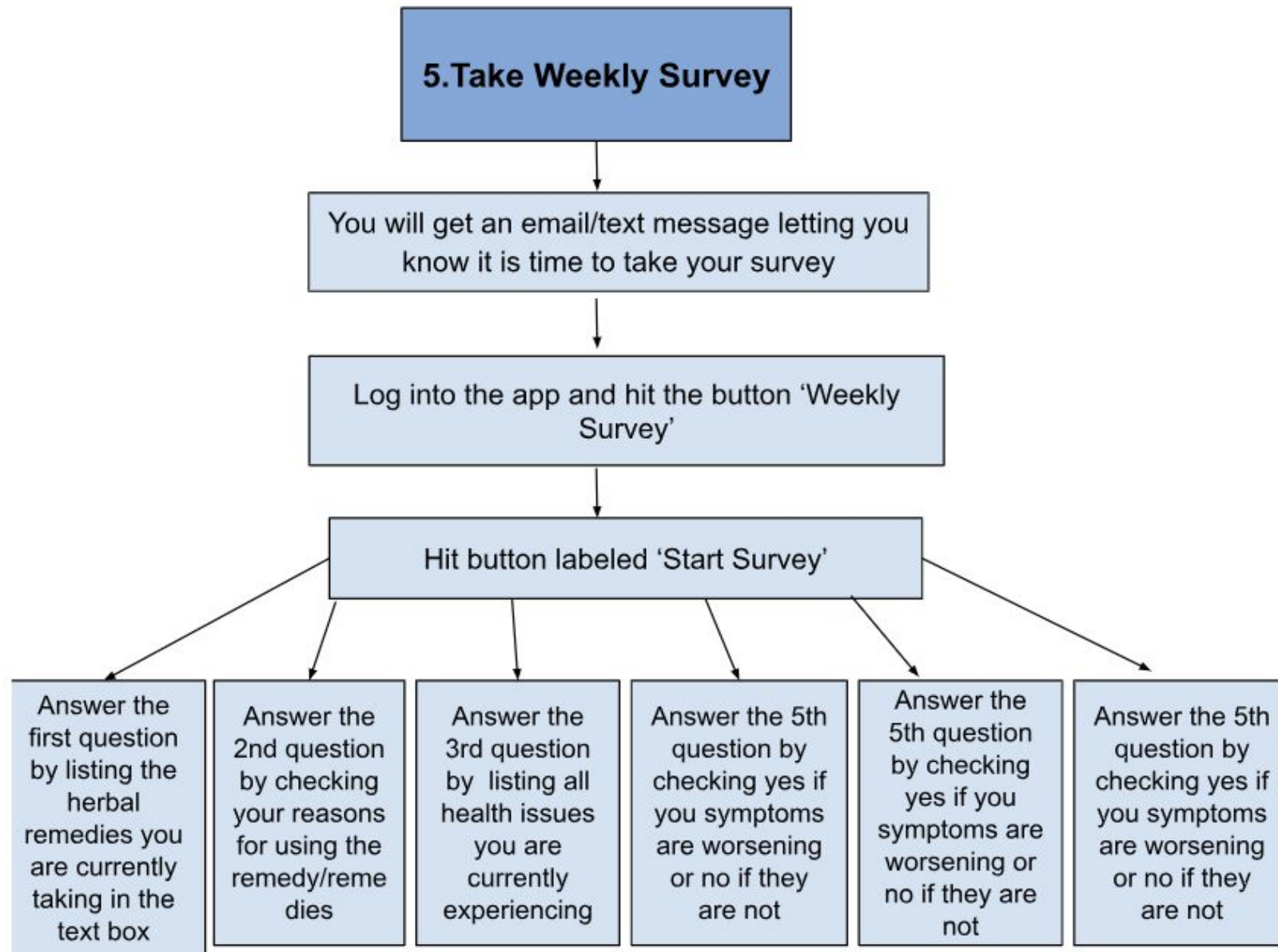
Log into app using Cerner/Medstar  
login in credentials

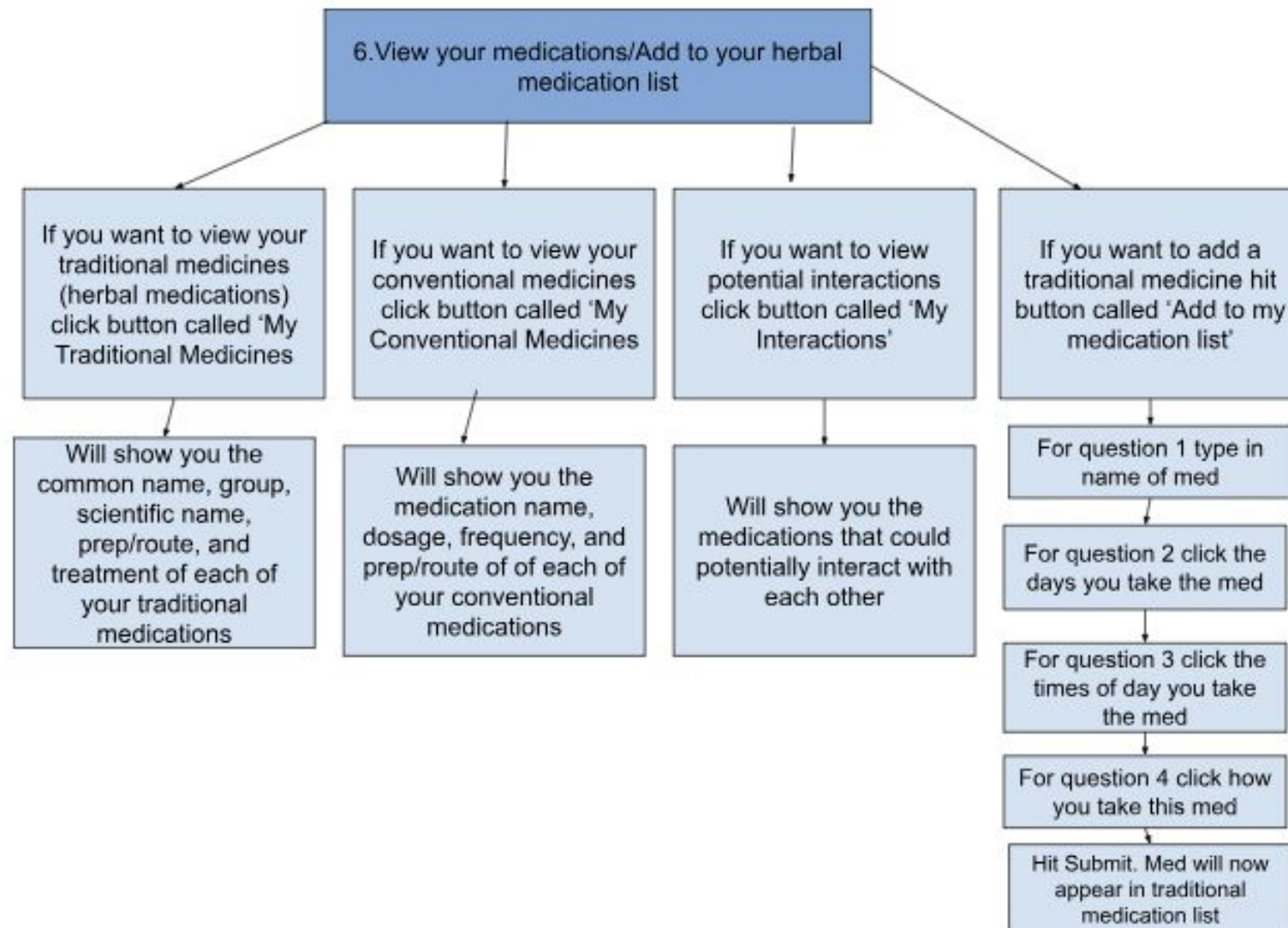


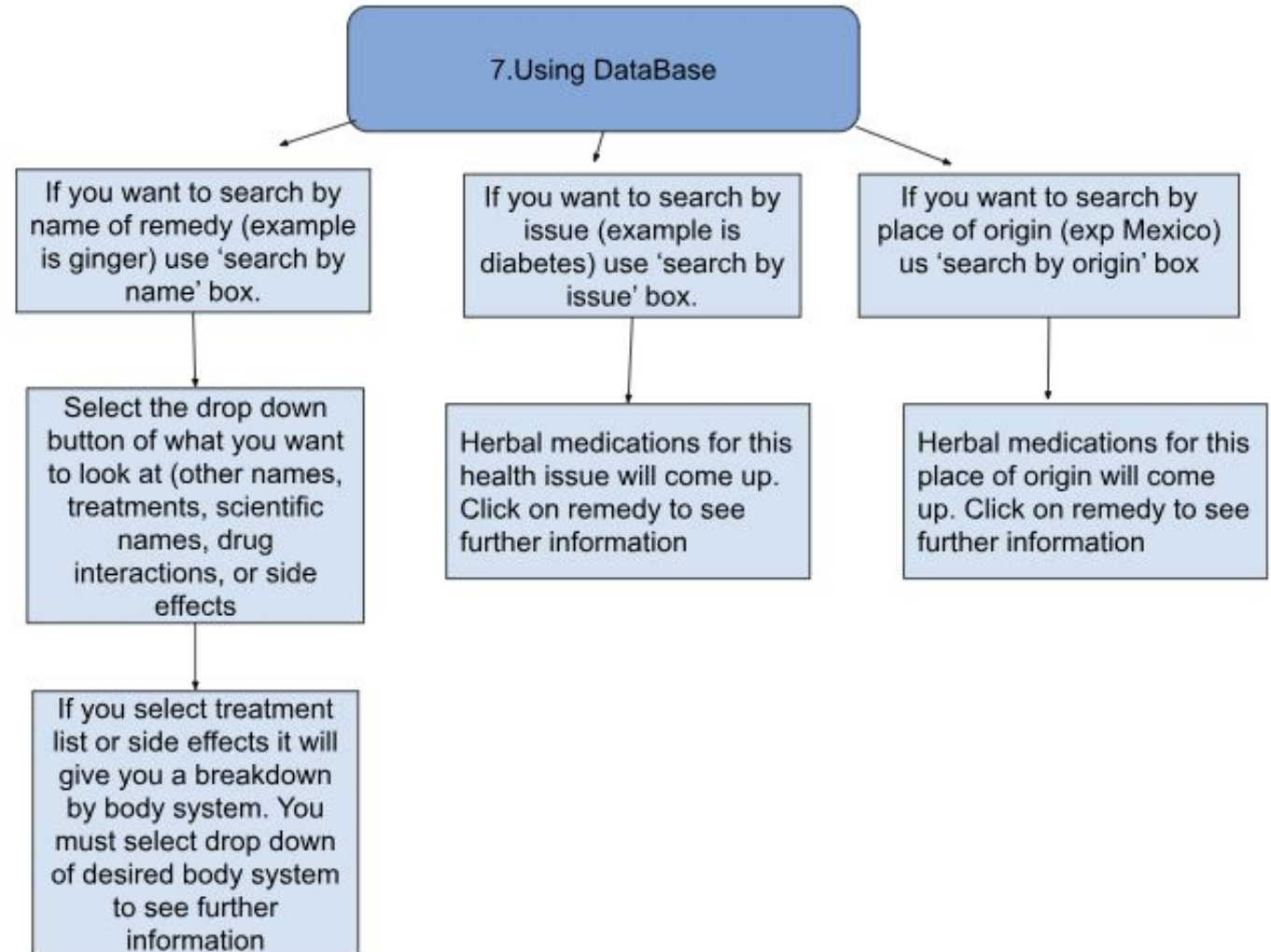
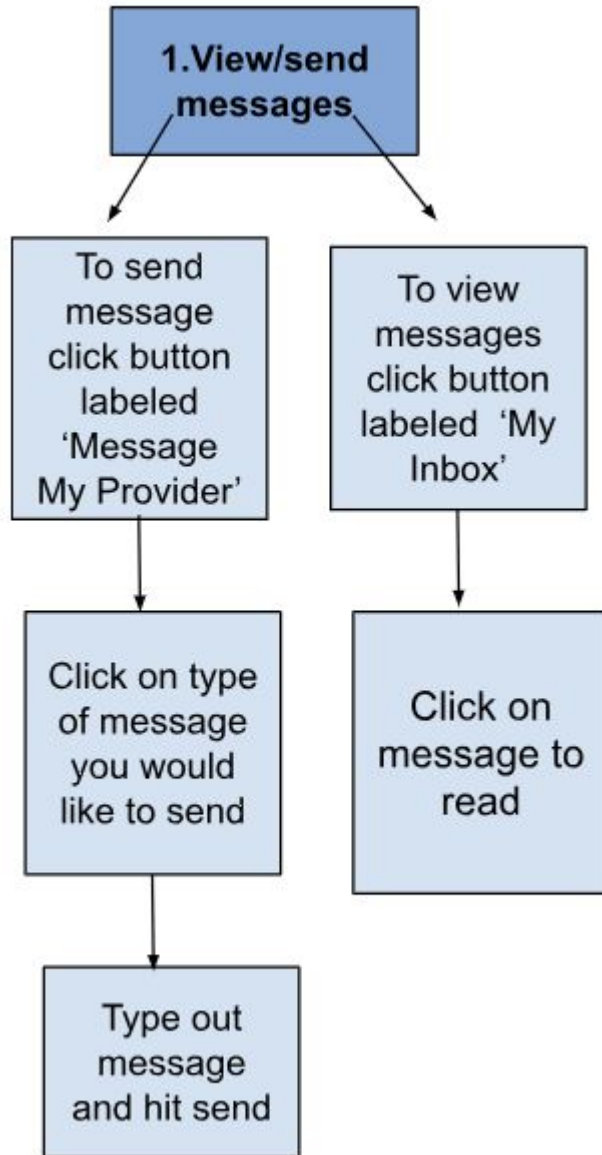
**Decide what you need to do:**

1. View/send messages
2. View upcoming appointments
3. View your healthcare team
4. View your patient information
5. Take your weekly survey
6. View your medications/add to your herbal medications list
7. Use database to search ethno medications









# Technical Specifications

1. Data storage
2. Authentication

# Data Storage

**REDCap:** Secure web application for building and managing online databases and survey forms for research studies.



<b>Data Integration</b>	Data is pulled back into a structured format
<b>Location</b>	Data is stored within Medstar Health
<b>Relational Database Structure</b>	Data Stored in Tables with Indexes (improves the speed of data retrieval) and Foreign Keys (allows you to link between two tables)
<b>Access Control</b>	Features Including Record Locking, User Rights Control, and E-Signature for Data Security
<b>API Integration</b>	Utilize REDCap's Application Programming Interface (API) for Programmatically Interacting with REDCap. Survey Responses Collected Outside REDCap Can Be Programmatically Imported Using API Integration

# Authentication

**OAuth 2.0:** an authorization protocol that allows users to grant third-party applications access to their resources without sharing their passwords.

<b>Step 1</b>	A patient attempts to log in to our mobile app, the app redirects them to the MedStar authentication server.
<b>Step 2</b>	The patient logs in to their MedStar account through the MedStar authentication server. Once authenticated, the server presents them with an authorization prompt, requesting their consent to grant access to our mobile app.
<b>Step 3</b>	If the patient grants consent, the MedStar authorization server issues an authorization token to our mobile app
<b>Step 4</b>	Our mobile app exchanges the authorization token directly from the MedStar authorization server. This token represents the user's authentication and authorization to access their resources.

**Result:** Our mobile app can now use the access token to make requests to the MedStar API on behalf of the user. This allows the app to retrieve the patient's medical information or perform other authorized actions.



# Encryption & Backups



**Amazon Web Server:** the world's most comprehensive and broadly adopted cloud, offering over 200 fully featured services from data centers globally.

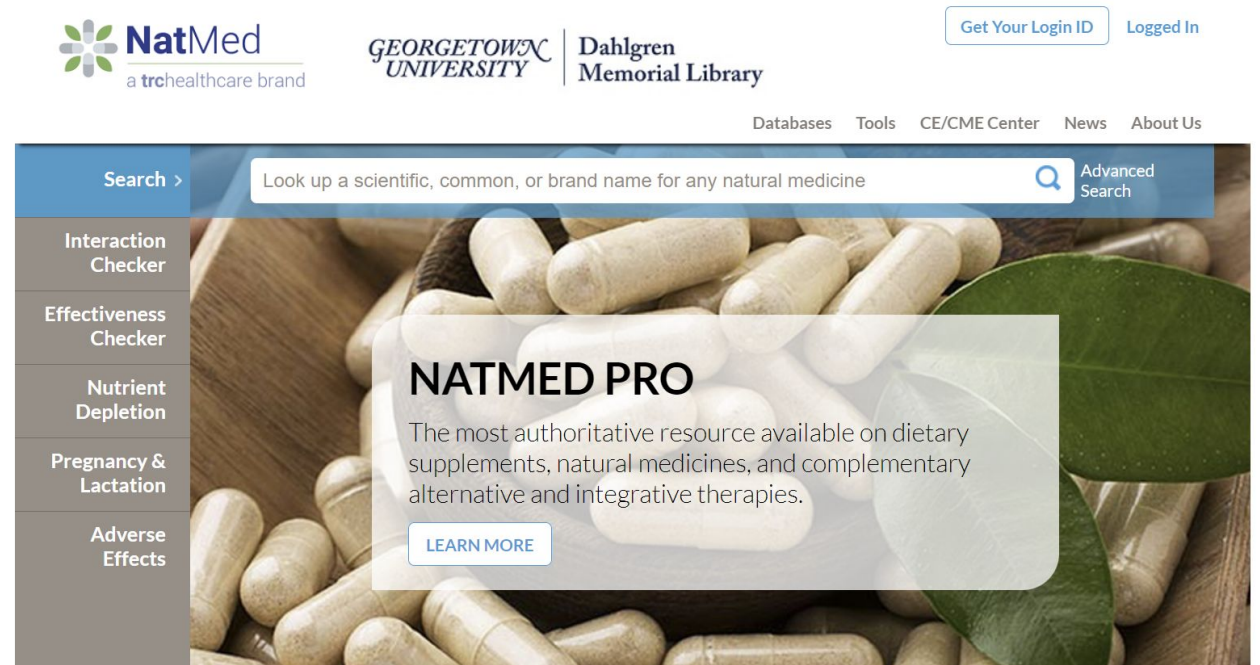
- AWS Backup is a fully managed backup service that makes it easy to centralize and automate the backup of data across AWS services
- AWS KMS (Key Management Service) is a managed service that makes it easy for you to create and control the encryption keys used to encrypt your data
- AWS security is verified and can handle HIPAA
- uses industry-standard encryption algorithms to protect data at rest and in transit.
- reliable, scalable, and inexpensive

# Database from API

**NatMed Pro:** The goal is to integrate the NatMed Pro database into our app using their API

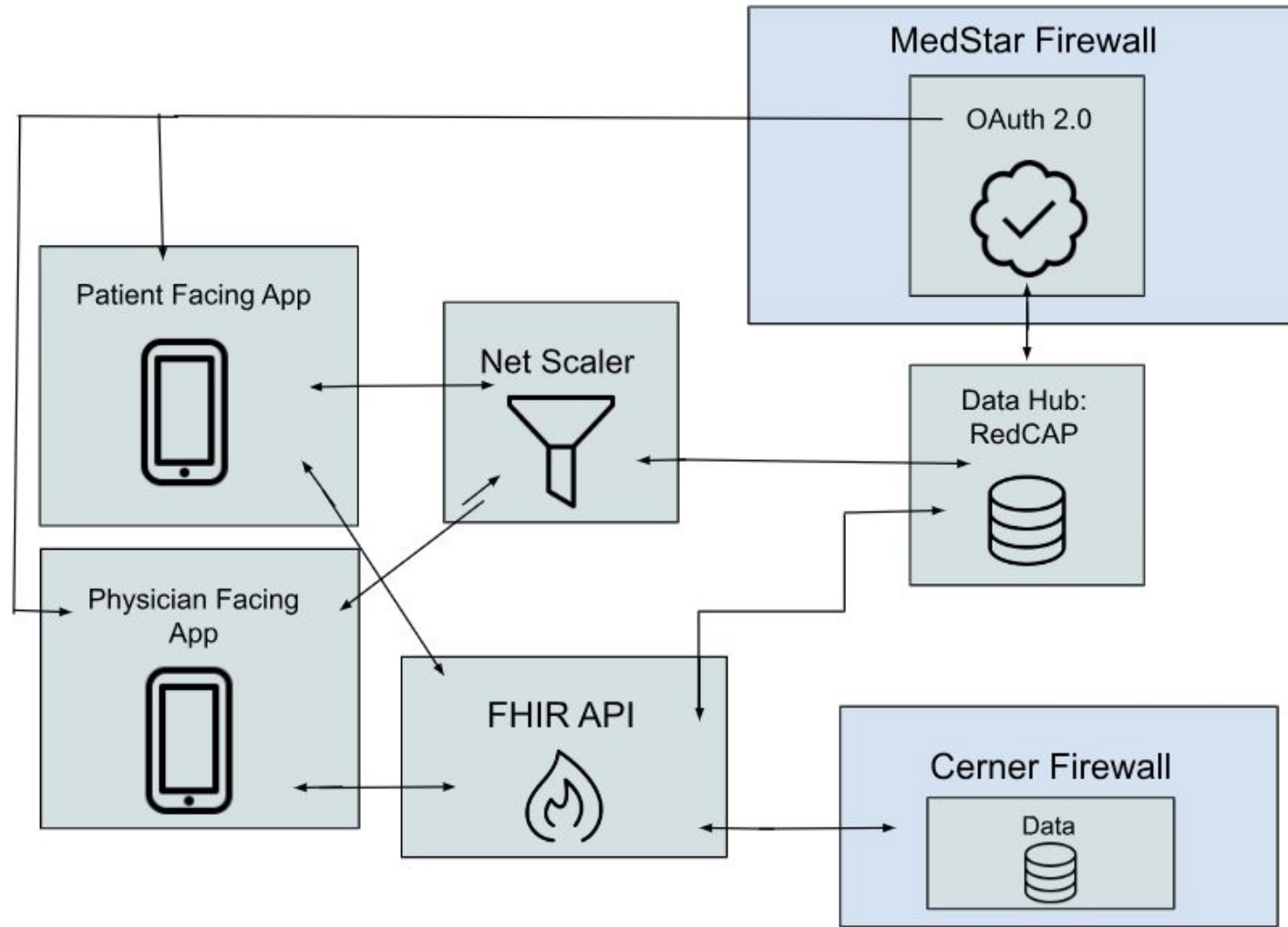
## Steps:

1. Review NatMed Pro API documentation
2. Obtain authentication credentials
3. Identify required API endpoints
4. Construct and send HTTP requests
5. Parse and handle API responses
6. Implement error handling
7. Test integration thoroughly
8. Deploy the integrated app





# Data Architecture



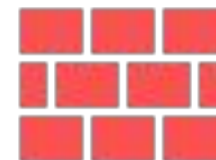
# Wire Framing the App

Lets go to Figma



# HIPAA Compliance & Security

**Security:** Ensure patient data is safe and regulated.



<b>HIPAA/PHI</b>	Implement administrative, physical, and technical safeguards to protect PHI. Sign a Business Associate Agreement (BAA).
<b>Controls</b>	These include access controls, encryption, and regular risk assessments: <b>End-to-End Encryption, Database Disk Encryption at Rest, Role-based Access Controls, Container Security Scans, Managed TLS Endpoints.</b>
<b>User Consent and Transparency</b>	Upon signing up for the program, patients are shown a “Terms of Agreement” that clearly informs users about data collection, storage, and usage practices.
<b>Regular Audits and Assessments</b>	Regularly review and update EthnoRX practices to stay compliant.

# Feedback & Usability Testing: Patient

	Yujin	Lannis
Patient Dashboard	<ul style="list-style-type: none"><li>• Difficult to read</li></ul>	<ul style="list-style-type: none"><li>• a little crowded</li><li>• may use drop downs to condense</li></ul>
Surveys	<ul style="list-style-type: none"><li>• Adding a medication vs inquiry is confusing to navigate</li></ul>	<ul style="list-style-type: none"><li>• if I hit 'other' box will textbox come up?</li></ul>
Physician Accessibility	<ul style="list-style-type: none"><li>• Messaging Dr. and setting appointment is good</li></ul>	<ul style="list-style-type: none"><li>• can you click on each pt for more info?</li></ul>
Database	<ul style="list-style-type: none"><li>• Helpful!</li></ul>	<ul style="list-style-type: none"><li>• love the pictures!</li><li>• why are there arrow buttons? Don't you just search and hit enter?</li></ul>

# Feedback & Usability Testing: Provider

	Dr. Shahnoor Jafri	Dr. Christabel Thompson
<b>Provider Dashboard</b>	<ul style="list-style-type: none"><li>• Icons are good and accessible.</li><li>• Most important features are centered</li></ul>	<ul style="list-style-type: none"><li>• design was clean, icons are easy to understand. Using natmed pro is very good idea</li></ul>
<b>Surveys</b>	<ul style="list-style-type: none"><li>• Only notify the physician when the survey is urgent or the patient is in a more critical condition</li></ul>	<ul style="list-style-type: none"><li>• if the surveys that have concerning side effects; when exactly are you notifying the drs? what is urgent and is not?</li></ul>
<b>Patient Messages</b>	<ul style="list-style-type: none"><li>• Might not be able to get to all patients</li></ul>	<ul style="list-style-type: none"><li>• drs deal with 100 patient panels, might not be feasible to check every weekly survey filled.</li><li>• in addition to the patients messages already-do they actually have time?</li></ul>
<b>Database</b>	<ul style="list-style-type: none"><li>• what do the interactions for collaborating with other doctors/researchers look like? How can you make this process swift and efficient?</li></ul>	<ul style="list-style-type: none"><li>• Show many new medications that were added instead of notifications</li></ul>

# Upcoming Changes Based on Feedback

## From Provider Feedback

- Alert system for doctors
  - Notifies doctors of concerning feedback in patient surveys
  - Addresses doctors' time constraints
  - Alerts prompt immediate attention to relevant surveys
  - Eliminates need for manual review of every survey
- Option for patients: 'Urgent message'
  - Indicates need for immediate attention
  - NOT for emergency situations
  - Alerts doctors to prioritize urgent messages
  - Ensures timely response while respecting doctors busy schedules
- better way for physicians to add to the database.

## From Patient Feedback

- Improve the readability and conscience of the app
- Potentially incorporate drop down lists instead of tables

**Thank you!!**

**Questions?**