

# **FINAL REPORT**

Challenges faced by International  
students to access healthcare  
at the University of North Carolina, Chapel Hill

Vidheesha Patel, Jason Boothapaty, Anuradha Bankar, Adishri Satpute,

December 7<sup>th</sup> 2023

## Table of Contents

<i>Section 1: Executive Summary</i> .....	<b>3</b>
<i>Section 2: Description of Current System</i> .....	<b>4</b>
<i>Section 3: Recommendation for New System</i> .....	<b>11</b>
<i>Section 4: Implementation Plan for New System</i> .....	<b>14</b>
<i>Section 5: Client Appendix</i> .....	<b>17</b>
<i>Section 6: Team Appendix</i> .....	<b>27</b>

## Section 1: Executive Summary

### **1.1 Problem Definition:**

The problem statement is within the context of Indian international students in the University of North Carolina, Chapel Hill campus. International students who enroll at UNC often encounter various obstacles when it comes to accessing healthcare services, which can have serious consequences on their well-being and academic success. We identified that the absence of a centralized information system at UNC for international students regarding campus-wide health resources leads to confusion, causing delays or avoidance in seeking medical care.

### **1.2 Current system**

The current system at UNC Chapel Hill revolves primarily around the Campus Health website (<https://campushealth.unc.edu/>). This website serves as a source of information as well as a guide to scheduling appointments for health check-ups, vaccinations as well as prescription refills for all students including International students. However, through our research, we observed that this website does not address the concerns which most International students have related to the US healthcare system. Additionally, there is no other point of contact specifically for International students who can assist them with their questions. Overall, the current system lacks crucial information for International students for accessing the healthcare facilities on Campus.

### **1.3 Method of Investigation**

To investigate about our problem, it was necessary to have a baseline understanding of the challenges encountered by our stakeholders. As a first step, we performed a literature review of all the existing information resources available to students at UNC. Moving on, we designed online surveys and conducted in-person interviews with our stakeholders to understand about their healthcare services accessibility concerns in depth. The responses that we received through both these investigation methods, helped us quantify the areas of improvement with the current system and propose a plan for the new system accordingly.

### **1.4 Recommendation for new system**

Through the methods that we followed for assessing the current system, we identified the breakdown points in the system environment. This helped us ideate solutions for modifications in the current system by taking small but effective steps such as- Healthcare orientation for International students by ISSS, assign a student representative as a point of contact for addressing concerns of International students, dedicated front desk for International students at Campus Health.

In addition to these changes, we also have an alternate proposal for creating a comprehensive mobile application that addresses all the concerns and includes links to all relevant resources as well as social media support groups for International students.

## Section 2: Description of Current System

### 2.1 Problem Definition

The main problems include a lack of awareness of the American healthcare system, problems with health insurance, unawareness of the mandatory, "health fee", language and cultural obstacles, a lack of timely transportation facilities, lack of adequate funds, and the stigma associated with mental illness. By addressing these issues, we can ensure that international students receive well-timed and efficient healthcare they require, advancing both their own welfare and the UNC community's inclusiveness.

Addressing these challenges and ensuring that international students have equitable access to healthcare is crucial not only for their individual wellbeing but also for the overall inclusivity, diversity and success of the university community. Universities like UNC must work to develop support systems and resources to mitigate these challenges and ensure that international students receive the healthcare they need during their academic journey.

#### 2.1.1 Setting and Environment

UNC-Chapel Hill ranked 30th among top host institutions for international scholars in the United States and as of Fall 2022, more than 2,500 international students from more than 100 countries were enrolled. Students transitioning from diverse healthcare systems in their home countries experience the complexities of the U.S. healthcare system upon arrival. Issues such as unfamiliarity with the U.S. healthcare system, insurance complications, mandatory 'health fee' unawareness, language barriers, cultural differences, transportation limitations, financial constraints, and mental health stigma hinder their access to healthcare services. These issues can significantly impact both their well-being and academic achievements.

#### 2.1.2 Problem statement

"Challenges faced by International students to access healthcare at the University of North Carolina, Chapel Hill."

#### 2.1.3 Current system models

Analyzing the current system through various models helped us gain clarity about the system environment. Out of the 8 draft models that were created by the team (see section 6.3), two models were finalized for the current system.

The first model was a sequence model (*refer to Fig 1*) for getting an appointment at campus health. It helped us understand all the current steps taken by students to book an appointment at Campus health when they encounter any health issue. The challenges that students face helped us identify the breakdown points in this system.

The second model was the Decision point model (*refer to Fig 2*). The influences on the left of the decision point model push the person positively toward making the choice of visiting a physician and seeking medical attention; influences on the right of the line push the person away from visiting a physician and seeking medical attention. This model improved our understanding of the obstacles and confusion that students encounter when they need medical care.

## Getting an appointment at Campus Health

### Walk-in appointment

TRIGGER: Feeling sick, urgent care required, mental health support

Intent: get medical help, to feel healthy, to get treated

Locate Campus Health building

BD: transportation required if student is injured

Find the nearest route to reach

Go to the reception

Mention if urgent-care is required

BD: language barrier can affect booking appointment

Book a date for appointment

BD: long wait time can cause delay in seeking medical help

Show-up on scheduled date to Campus Health

BD: transportation required if student is injured/handicapped

Give medical history

BD: language barrier may lead to miscommunication

Proceed to Doctor's clinic for checkup



Inform about symptoms & get diagnosed

BD: fear of being judged might lead to giving partial information to doctor

Pickup medications prescribed from nearest pharmacy

BD: transportation required if student is injured/handicapped

Go home / dorm to take rest

### Online appointment

TRIGGER: probability of falling sick, general check-up, mental health concerns

Intent: get medical help, to feel better, get seek appropriate resources

Locate Campus Health website

check if health-insurance gives a coverage

BD: lack of awareness about health-fees

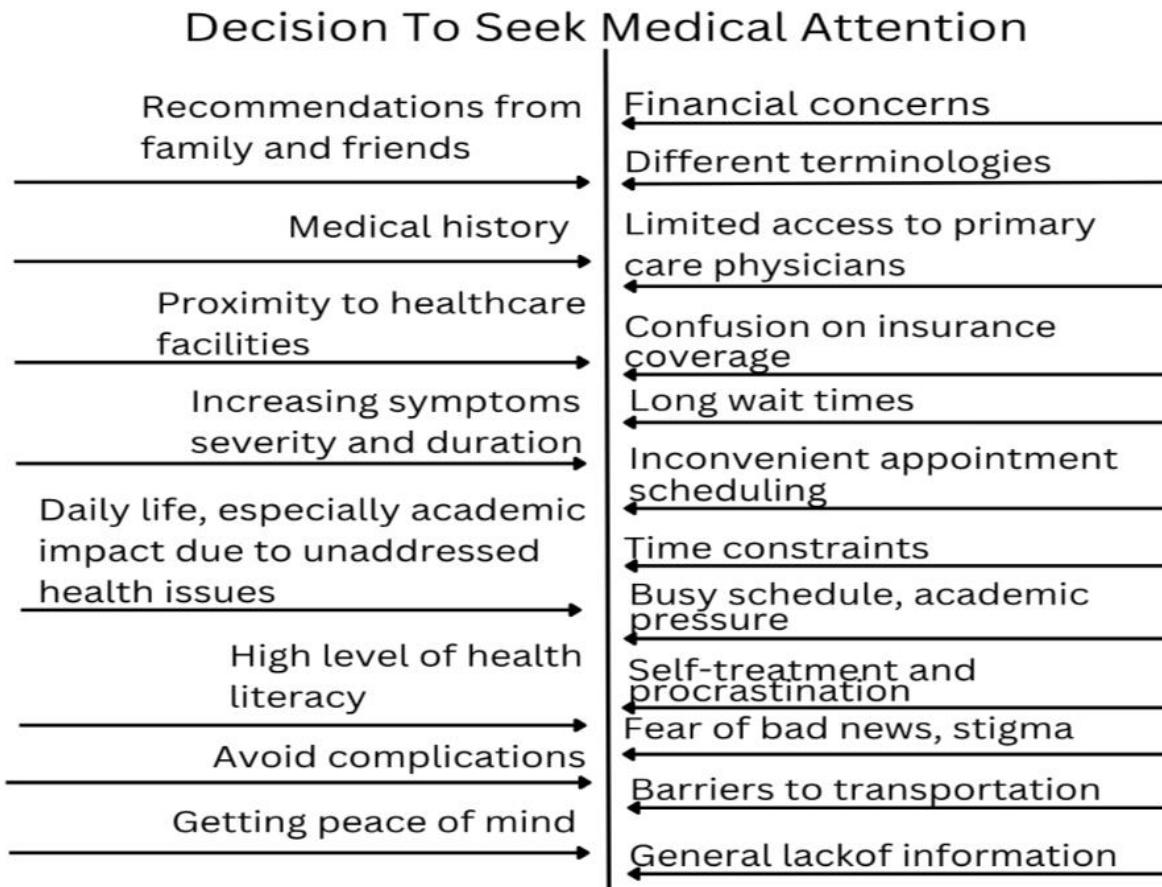
look for appointments page

BD: getting lost due to information overload

Book

Get suitable date for appointment

Fig. 1. Sequence model of getting an appointment



*Fig 2. Decision point model*

#### 2.1.4 Problem Quantification

List below are the key breakdowns revealed by the models for the current system:

1. *Lack of awareness of the U.S. healthcare system* – The tension between public and private action continues to define the kind of healthcare system in the United States. Navigating this system is not an easy task, especially if students come from countries where health equity and accessibility is given priority.
2. *Appointments scheduling* – Students are a busy crowd, especially when it's an international student juggling full-time classes, assignments, visa requirements etc. The U.S. healthcare system works on “appointments” and this hinders comfortable access to health services. Students find difficulty in getting an appointment at their convenience.
3. *Finances* - Healthcare costs in the United States can be significantly higher than in many other countries. International students may be hesitant to seek medical care and more likely to procrastinate and adjust by just taking some OTC medication due to concerns about the financial burden it could impose on them.

4. *Communication barriers and cultural diversity* - Language barriers can hinder effective communication between international students and healthcare providers. Additionally, cultural differences may affect their comfort levels in discussing health issues or seeking certain types of care.
5. *Limited Transportation* – Most international students who come to the U.S. through regular routes do not have a car. Access to healthcare facilities may be challenging for international students who do not have access to reliable transportation, especially for those living off campus, particularly if medical facilities are not within walking distance of their residence.
6. *Understanding insurance* - International students are typically required to have mandatory health insurance, but understanding the terms, coverage, and procedures of their insurance plans can be complex. Some may face difficulties in affording insurance premiums or understanding the billing process.
7. *Unawareness of “Health fee”* - Many international students are still ignorant of the “health fee” that is included in their semester fees, which means that opportunities to use it to their advantage are lost. They are unable to fully benefit from the resources and services that this fee may offer due to their ignorance.

### **2.1.5 Stakeholders**

Our stakeholders were fee-paying non-U.S. citizens students at UNC Chapel Hill (*see section 5.1*). For the first phase of this project, we circulated questionnaires (*see section 5.2*) to gauge our participants' understanding of the U.S. healthcare system, evaluate their familiarity with available resources, and collect their suggestions for system improvement.

### **2.1.6 Scope**

The scope of this project is limited to defining and recommending a system to simplify U.S. healthcare navigation and minimize perplexities, specifically for international students at UNC Chapel Hill. Part of this project is to assess students' comprehension of the U.S. healthcare system, appraise their awareness of available resources, and gather their recommendations for enhancing the system. This involves identifying the factors that influence whether a student decides to seek medical attention or not. Simply put, the healthcare navigation for international students cannot be arduous and, in some way, has to have a framework established in UNC Campus Health. After collecting suggestions, the team directed its efforts towards devising solutions to a smoother navigation process and understanding of the U.S healthcare system.

### **2.1.7 Methods**

A broad overview of our methodology is as follows-

- Conduct a review of the existing system
- Perform contextual inquiry through observation, survey and in-person interviews
- Assess users' approach towards health, cultural background and expectation from the U.S. healthcare system

- To identify pain points and suggest recommendations for a new system within UNC Campus
- Develop working models of ideal system
- Validate work models with stakeholders

## **2.1.8 Sources of Information**

Our primary source of information was a survey (*see section 5.2*) The survey was emailed out to 15 users who fit our stakeholder criteria. We received 13 responses and our data revealed that users were facing significant challenges with healthcare access. Many users had, at some point, experienced the need to seek medical attention and encountered difficulties in access.

Another source of information was semi-structured interviews which were a crucial part of our information gathering plan. We conducted 13 in-person interviews with our participants which took 7-10 minutes each (*see section 6.4*)

## **2.2 Investigation**

### **2.2.1 Data collection**

Following the identification of issues within the system environment, the subsequent phase entailed comprehensive data gathering. We systematically examined the existing system by thoroughly reviewing available resources, including an in-depth exploration of the Campus Health website and ISSS website, meticulously cataloging all encountered deficiencies.

Subsequently, the second phase involved a nuanced comprehension of the identified problems from the user's perspective. To achieve a more profound understanding of the problem's actuality, we conducted two distinct phases of data gathering from our project participants.

- In the initial phase, a survey was implemented whereby a structured questionnaire was distributed to all participants via their respective school email addresses.
- The subsequent phase comprised contextual inquiries, wherein a semi-structured interviews were conducted with participants who responded to the survey.
- To facilitate the interview process, our team was organized into pairs, with Jason and Anuradha collaborating, as well as Adishri and Vidheesha. During the interviews, one member served as the interviewer, documenting responses, while the other took supplementary notes to ensure comprehensive coverage of all aspects (*see section 6.1*)
- All gathered responses were meticulously documented and recorded in an Excel spreadsheet (*see section 5.3*).

## **2.2.2 Data Interpretation**

After analyzing the data from our survey and contextual inquiries (see section 5.2 and 5.3), we learnt more about the current system from the users perspective. Few important takeaways from the data analysis were:

- Only a few percentages (69.2%) of participants were aware of the healthcare system in the US.
- Many (53.8%) were aware of the primary point of contact to address healthcare concern in the US.
- Most participants were unaware of the resources available for international students.
- 84.6% participants believe that they don't receive enough knowledge on the resources or primary point of contact to access healthcare facilities on campus.
- 76.9% participants have found themselves delaying seeking medical attention due to the cost of treatment here in the US.
- Though many were aware of the mandatory health fee they pay each semester, 61.4% were ignorant of what benefits/services are included in the fee.
- Majority of participants seek such critical information through the university and ISSS.
- 15.38 % of participants were not aware of the location of Campus Health.
- 46.15 % of participants did not know what their insurance benefits and coverages are.
- 38.46 % of participants were not aware regarding scheduling an appointment at Campus Health.
- Only few international students can answer correctly to “whom to approach in case of medical emergency on campus?”

The survey and contextual inquiries played a pivotal role in enhancing our comprehension of the system environment. They facilitated the identification of root causes and influencing factors contributing to the identified problems. This comprehensive understanding serves as a foundation for devising a new system that effectively addresses all pertinent factors, thereby positioning it as a valuable resource for resolving the identified issues.

## **2.2.4 Summary of pain points**

From the aforementioned issues and key findings, we identified four primary pain points:

- Unawareness of the primary point of contact,
- Unawareness of the benefits covered by the health fee,
- Knowledge on benefits and coverages of insurance, and
- Campus Health location, services offered and appointment scheduling.

The newly proposed system ensures a comprehensive resolution of identified pain points, augmented by the provision of a mobile application that serves as a dedicated resource for clarifying any queries or concerns for International students.

## Section 3: Recommendation for New System

### 3.1 Ideal System

In response to the healthcare disparities faced by international students at UNC, we propose an ideal system that takes a comprehensive approach to solve the problem. By integrating innovative features with innovative technology, our goal is to create a healthcare ecosystem that not only addresses the unique needs of international students but also mitigates disparities in accessing healthcare resources. The following key components are crucial for the success of this comprehensive and innovative ideal system:

- **Student Representative from Med School - Part-Time Job:**  
Integrate a dynamic part-time role for a student representative within the innovative mobile application. This representative acts as a liaison between international students and healthcare providers, fostering seamless communication and understanding.
- **International Provider to Address Concerns:**  
Implement a virtual healthcare provider accessible through the mobile application. This service ensures international students receive timely and tailored medical advice, bridging the gap in healthcare accessibility.
- **International Student Help Desk at Campus Health:**  
Establish a dedicated help desk within the mobile app, providing instant support and serving as a centralized hub for healthcare information. This feature aims to guide international students through their healthcare journey.
- **ISSS (International Student and Scholar Services) Conducting Separate Health Orientations:**  
ISSS conducts specific orientations for International students before the semester starts to educate and create awareness of the healthcare system on campus
- **Follow-Up Questionnaire and Regular Meetings:**  
Enhance the mobile app with features for follow-up questionnaires and virtual bi-weekly meetings. This engagement strategy ensures continuous communication, feedback, and a sense of community among international students.
- **Social Media Platform:**  
Provide links to social media platforms within the mobile app for virtual bi-weekly meetings. This innovative approach provides a space for students to connect, share experiences, and engage in discussions related to healthcare and well-being.
- **Pre-Semester Checkup:**
  - Utilize the mobile app to enable scheduling and conducting virtual or in-person pre-semester checkups. This proactive measure ensures students' health conditions are assessed comprehensively before the semester begins.
- **Tele-Health Services:**

- Introduce tele-health services within the mobile application, allowing international students to access medical consultations remotely. This feature enhances healthcare accessibility, particularly for students unable to visit physical health facilities.

### **3.2 Scope Limitations to Ideal System**

While the ideal system promises a comprehensive solution, potential limitations must be considered to ensure successful implementation:

- **Tech Budget Constraints:**  
The implementation of innovative technology and the development of a feature-rich mobile application may face financial constraints. A limited budget may impact the scope and scalability of the ideal system.
- **Usability Issues:**  
Usability concerns may arise, particularly if the technology is not user-friendly or if students face challenges in adopting and navigating the mobile application. Usability issues could hinder the effective use of the healthcare system.
- **Data Security:**  
Ensuring the security of sensitive health data within the mobile application is paramount. Challenges related to data breaches or unauthorized access could compromise the confidentiality and privacy of international students' health information.

### **3.3 Models of proposed system**

By studying the breakdown points of the current system through the Sequence model and analyzing the participant responses, we came up with another Sequence model for our proposed system which takes all the pain points with the current system in consideration and gives an overview of the flow of steps of the proposed system.

## International student arrival in US

ISSS orientation- General, Healthcare specific

Check in with new students by Campus Health- Scheduling appointments, Physical Checkup, initial counselling, Vaccine information

## In case of any Health concern

Primary resource- Campus Health website, followed by Student representative

Information on services offered- Campus Health, Insurance provider

## While seeking medical care

Front desk specific for international students to address all the issues, explain the process of treatment, insurance coverages and benefits of Health fee

Knowledge on Referral system in case of care in specific departments. Eg- UNC hospital

### 3.4 Ideal System - Integrated with Innovative Features

This is an alternative proposal for the ideal system which goes beyond conventional healthcare delivery and integrates cutting-edge technology to provide a seamless, empowering, and culturally sensitive healthcare experience for international students:

- **Mobile Application for Healthcare Access:**

Crafting a feature-rich mobile application encompassing virtual consultations, appointment scheduling, medication reminders, and access to health records. This consolidated platform streamlines healthcare access for students.

- **AI-Driven Multilingual Support:**

Incorporating artificial intelligence (AI)-driven multilingual support within the app to facilitate real-time language translation. This ensures clear communication between healthcare providers and students, overcoming potential language barriers.

- **Health Monitoring Wearables:**

Providing international students with health monitoring wearables synchronized with the app. This integration enables continuous health tracking, early intervention, and a proactive approach to well-being.

- **Virtual Reality (VR) Campus Health Tours:**

Implementing VR-based campus health tours within the app to offer an immersive experience. This interactive feature introduces healthcare facilities, displays medical staff, and explains healthcare procedures in a virtual environment.

- **Blockchain for Secure Health Records:**

Leveraging blockchain technology within the app to ensure the security and integrity of health records. This transparent and yet tamper-proof system enhances data security and builds trust among users.

- **Gamified Health Education Modules:**

Developing gamified health education modules within the app to make learning about the healthcare system engaging and interactive. This innovative approach promotes active participation and knowledge retention.

- **Community Health Forums:**

Establishing virtual community health forums within the app, fostering a sense of belonging and support among international students. This platform encourages the exchange of experiences, questions, and peer support in a digital community space.

This comprehensive and innovative ideal system is designed to overcome potential limitations and create a healthcare ecosystem that prioritizes accessibility, usability, and data security for international students at UNC. However, deploying this system in place is time consuming, has high cost of framework and would require highly skilled professionals for its development.

## Section 4: Implementation Plan for New System

The implementation plan for the proposed comprehensive and innovative healthcare system for international students at UNC unfolds in three strategic phases. Each phase is meticulously designed to ensure a seamless transition, effective utilization of resources, and ongoing improvement based on user feedback.

### Phase 1: Establishment

*Goals:*

- **Establish the Foundation:** Lay the groundwork for the ideal system, including infrastructure, personnel, and initial technological integration.

- **Integrate Initial Features:** Incorporate fundamental features within the UNC Health mobile app to kickstart the enhanced healthcare system.
- **Engage Users:** Initiate a targeted engagement strategy to introduce international students to the new healthcare features and gather initial feedback.

*Tasks:*

- **Infrastructure Setup (Month 1-2):**
- Establish the necessary technical infrastructure to support the enhanced UNC Health mobile app.
- **Personnel Recruitment and Training (Month 2-3):**
- Hire and train personnel, including a student representative, allocating a virtual healthcare provider, and help desk support.
- **Initial Integration (Month 3-5):**
- Begin integrating the initial features within the UNC Health mobile app, including appointment scheduling, virtual consultations, and health records access.
- **User Engagement Campaign (Month 6-8):**
- Launch a targeted user engagement campaign to inform international students about the new healthcare features and encourage early adoption.
- Gather initial feedback through surveys and user interactions.

## Phase 2: Expansion

*Goals:*

- **Expand System Reach:** Scale up the system to cater to a broader audience of international students.
- **Virtual Integration:** Introduce virtual reality (VR) features, AI-driven multilingual support, and additional health monitoring wearables.
- **Enhanced Features:** Implement advanced features to enrich the user experience within the UNC Health mobile app.

*Tasks:*

- **System Expansion (Month 9-12):**
- Expand the system to include a larger percentage of international students, ensuring widespread access.
- **Virtual Integration (Month 12-15):**
- Introduce virtual reality (VR) features, allowing students to experience virtual health tours and interactive educational content.
- **Enhanced Features Implementation (Month 15-18):**
- Implement additional features, such as blockchain for secure health records, gamified health education modules, and community health forums.
- **User Training (Month 18-20):**
- Conduct training sessions and provide resources to guide users through the expanded and enhanced features.

## Phase 3: Optimization

*Goals:*

- **Optimize Performance:** Focus on refining the system's performance based on user experiences and feedback.

- **Continuous Improvement:** Establish mechanisms for continuous improvement, adapting the system to changing needs and preferences.
- **Adapt to Feedback:** Prioritize user feedback and make iterative enhancements to ensure the system's ongoing effectiveness.

*Tasks:*

- **Performance Optimization (Month 21-24):**
  - Conduct performance evaluations to identify areas for optimization and streamlining.
  - Address any technical glitches or usability issues to enhance the overall performance.
- **Continuous Improvement Mechanism (Month 24-27):**
  - Establish a dedicated team for continuous improvement, comprising technical experts, healthcare professionals, and user experience specialists.
- **Adapting to Feedback (Month 27-Onward):**
  - Implement regular feedback collection mechanisms, encouraging users to share their experiences and suggestions.
  - Prioritize and implement feedback-driven improvements.

The phased implementation plan ensures a systematic and effective rollout of the comprehensive healthcare system for international students at UNC. By establishing a strong foundation, expanding features strategically, and prioritizing continuous improvement, this plan aims to create a sustainable and responsive healthcare ecosystem that meets the evolving needs of the international student community.

#### **Rationale:**

The rationale behind adopting a staged implementation approach for the enhanced healthcare system for international students at UNC is rooted in several key principles, emphasizing practicality, user adoption, feedback, and risk mitigation.

- **Staged Implementation:**  
The decision to implement the system in stages is driven by the need for a gradual and streamlined deployment. Staged implementation allows for a focused and manageable introduction of new features, ensuring that each phase is thoroughly tested and optimized before moving on to the next. This methodical approach mitigates the risk of overwhelming users and facilitates a smoother integration process.
- **User Adoption:**  
Recognizing the importance of user adoption, the phased implementation is designed to introduce features gradually. This approach aligns with the principle of change management, allowing users to adapt to the system over time. By avoiding an abrupt overhaul, international students can familiarize themselves with new features at a comfortable pace, fostering greater acceptance and utilization of the enhanced healthcare system.
- **Feedback Loop:**

The implementation plan incorporates a structured feedback loop at multiple stages. Phases 1 and 2 are strategically positioned to gather early feedback from users. This early input is invaluable for identifying initial challenges and making prompt adjustments. Phase 3 takes the feedback loop a step further by establishing mechanisms for continuous improvement. Regular feedback collection ensures that the system remains responsive to user needs and evolving requirements.

- **Risk Mitigation:**

Staged implementation serves as a risk mitigation strategy. By breaking down the deployment into manageable phases, unforeseen challenges that may arise during implementation can be identified and addressed more effectively. This approach allows for adjustments to be made in real-time, reducing the potential impact of unexpected issues and enhancing the overall reliability and success of the healthcare system.

In summary, the rationale for adopting a staged implementation is rooted in a strategic and user-centric approach. It prioritizes practicality, user acceptance, ongoing feedback, and risk mitigation, ultimately contributing to the success and sustainability of the enhanced healthcare system for international students at UNC.

## Section 5: Client Appendix

### 5.1 Stakeholder information

Sr. No.	Name	Email ID
1.	Biren Chaudhary	<a href="mailto:cbiren@unc.edu">cbiren@unc.edu</a>
2.	Dhairyasheel Mengane	<a href="mailto:dmengane@unc.edu">dmengane@unc.edu</a>
3.	Eesha Pisal	<a href="mailto:eepisal@unc.edu">eepisal@unc.edu</a>
4.	Haritha Bhatta	<a href="mailto:bhatta@unc.edu">bhatta@unc.edu</a>
5.	Jyothsna Ginjupalli	<a href="mailto:jyothsna@unc.edu">jyothsna@unc.edu</a>
6.	Krishnaveni Gorijavolu	<a href="mailto:gokrish@unc.edu">gokrish@unc.edu</a>
7.	Sai Tejaswini Velpuri	<a href="mailto:velpuri@unc.edu">velpuri@unc.edu</a>
8.	Shilpa Sundar	<a href="mailto:shilpa14@email.unc.edu">shilpa14@email.unc.edu</a>
9.	Sanju Rajan	<a href="mailto:sanju@ad.unc.edu">sanju@ad.unc.edu</a>
10.	Shresta Jajapur	<a href="mailto:shresta@unc.edu">shresta@unc.edu</a>

11.	Tanmayee Muppidi	<a href="mailto:tanmayee@unc.edu">tanmayee@unc.edu</a>
12.	Vinod Kumar	<a href="mailto:vinodk@unc.edu">vinodk@unc.edu</a>
13.	Yachna Goyal	<a href="mailto:yachna@email.unc.edu">yachna@email.unc.edu</a>

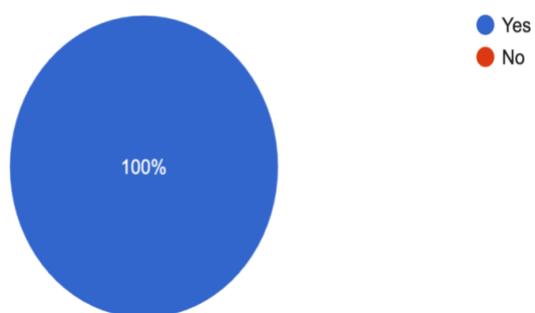
*Table 1: Contact information of survey participants*

## 5.2 Survey Questions and participant responses

The images attached below describe the set of questions and the responses received by our participants which helped us consolidate our findings.

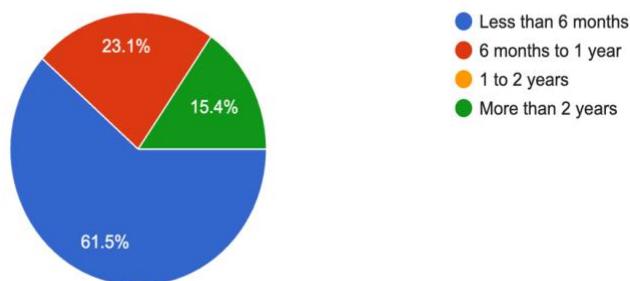
Are you an international student currently studying in the United States?

13 responses



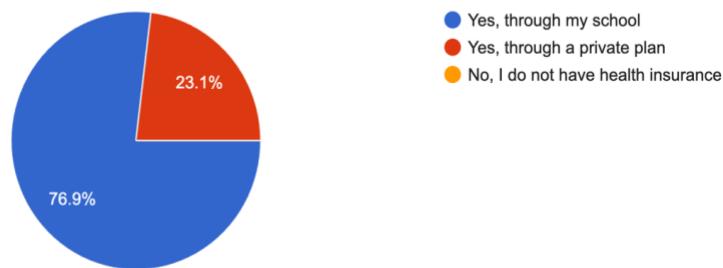
How long have you been studying in the United States?

13 responses



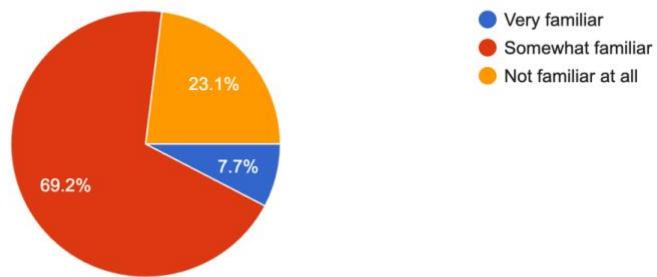
Do you have health insurance coverage while studying in the US?

13 responses



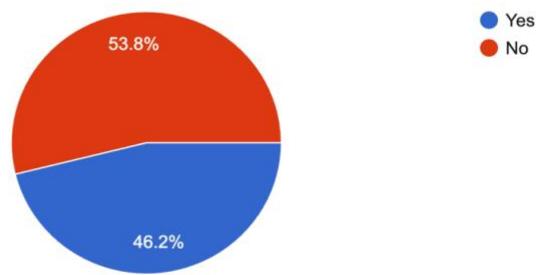
How familiar are you with the US healthcare system?

13 responses



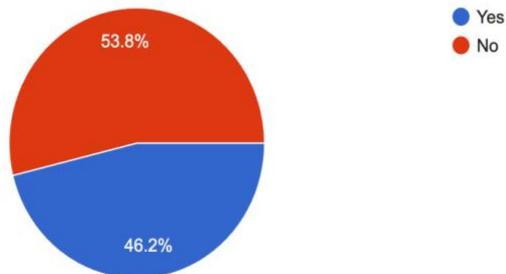
Have you ever had to seek medical care in the US?

13 responses



Are you familiar with the initial point of contact for addressing your health issues in the US?

13 responses

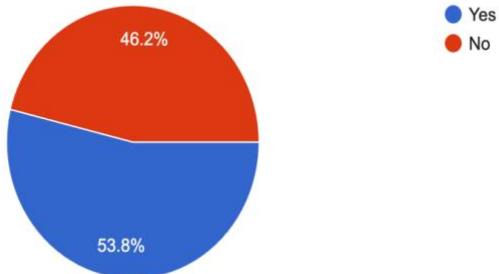


Yes

No

Do you feel comfortable approaching healthcare providers in the US with your health concerns?

13 responses

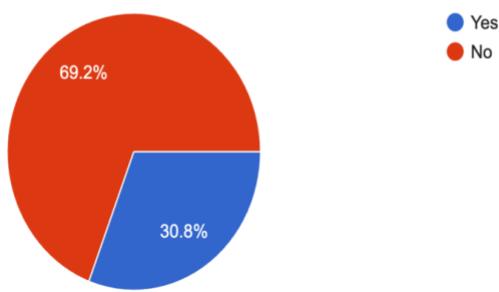


Yes

No

Have you experienced any language or communication barriers when seeking healthcare in the US?

13 responses

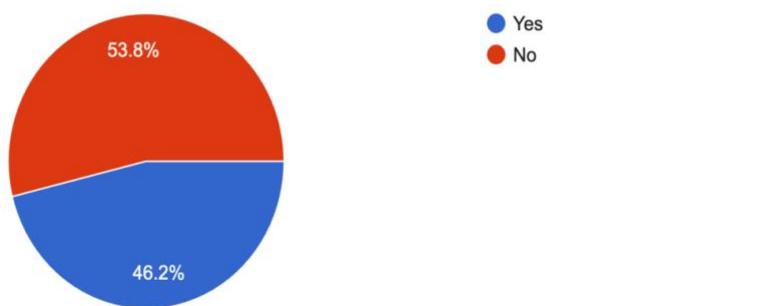


Yes

No

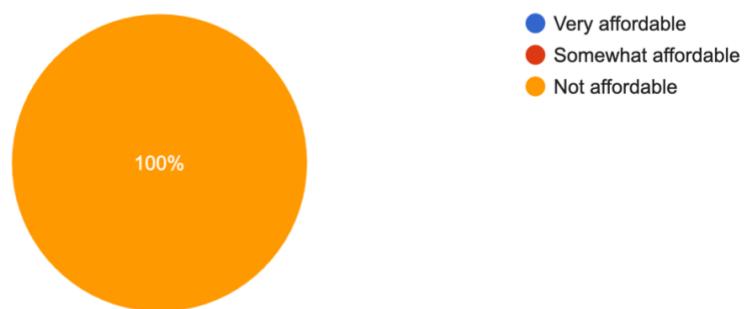
Are there cultural differences that have made it challenging to access healthcare in the US?

13 responses



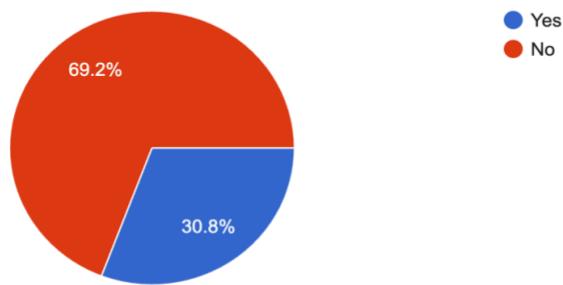
How would you rate the affordability of healthcare services in the US?

13 responses



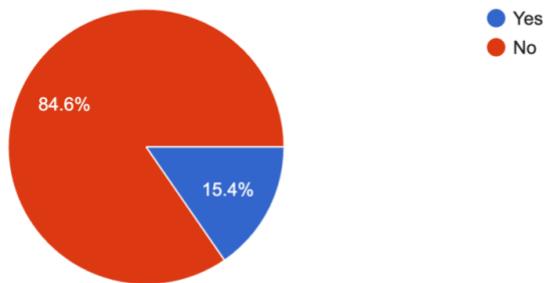
Are you aware of any resources or support services for international students related to healthcare?

13 responses



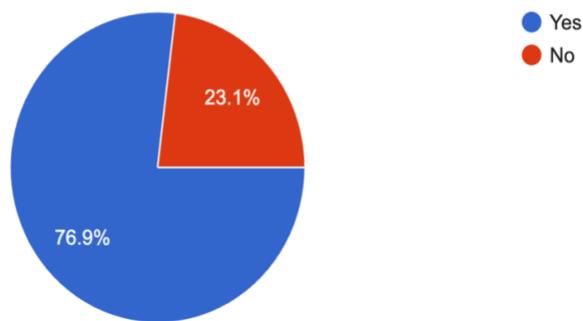
Do you think international students receive adequate healthcare information upon arriving in the US?

13 responses



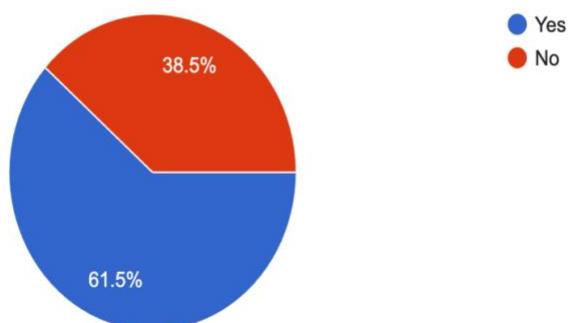
Have you ever delayed seeking medical care due to concerns about the cost?

13 responses



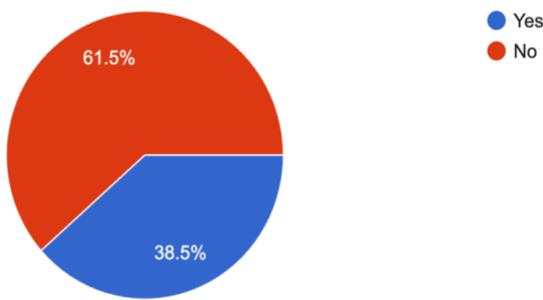
Are you aware of any mental health resources available to international students in the US?

13 responses



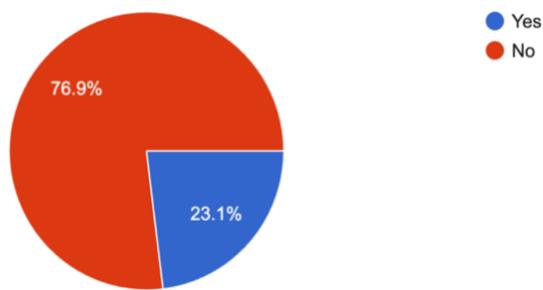
Have you ever faced difficulties accessing mental health services in the US?

13 responses



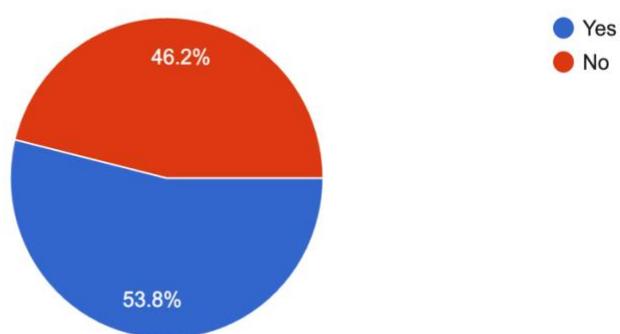
Have you encountered any bureaucratic challenges, such as paperwork or eligibility issues, when seeking healthcare in the US?

13 responses



Do you know who to call in case of any emergency here in the US?

13 responses



### 5.3 Questions and participant responses from Contextual Inquiries:

Do you have the knowledge on what your insurance covers and what not?	Are you comfortable to discuss your health concerns with US doctors?	What difference have you noticed in the care provided in US as compared to your home country?	Would like to receive this information through ISSS at the start of semester?	If BCBS, do you know you're eligible to get a free vaccine, any health facility which?	Would you encourage student rep to help you or concerns?
No	Yes	Difficult communication	Yes	No	Yes
Somewhat	Yes	Lengthy process, longer time to diagnose	Yes	Yes- COVID	Yes
Yes	Yes	Don't easily prescribe antibiotics, long history taking	Yes	Yes- COVID, Flu	Yes
Yes	Yes	Difficult communication	Yes	Yes- COVID, Flu	Yes
Somewhat	Yes	Lack of awareness on resources, long waiting time	Yes	Yes- COVID	Yes
Somewhat	Yes	Lengthy process	Yes	No	Yes
No	Yes	Long waiting time	Yes	No	Yes
No	Yes	Don't easily prescribe antibiotics, long history taking	Yes	No	Yes
Somewhat	Yes	Long waiting time	Yes	Yes- Flu	Yes
Somewhat	Yes	Lack of awareness on resources, long waiting time	Yes	Yes- Flu	Yes
No	Yes	Long waiting time	Yes	No	Yes
No	Yes	Lack of awareness on resources, long waiting time	Yes	No	Yes
No	Yes	Its only good if you have insurance	Yes	No	Yes

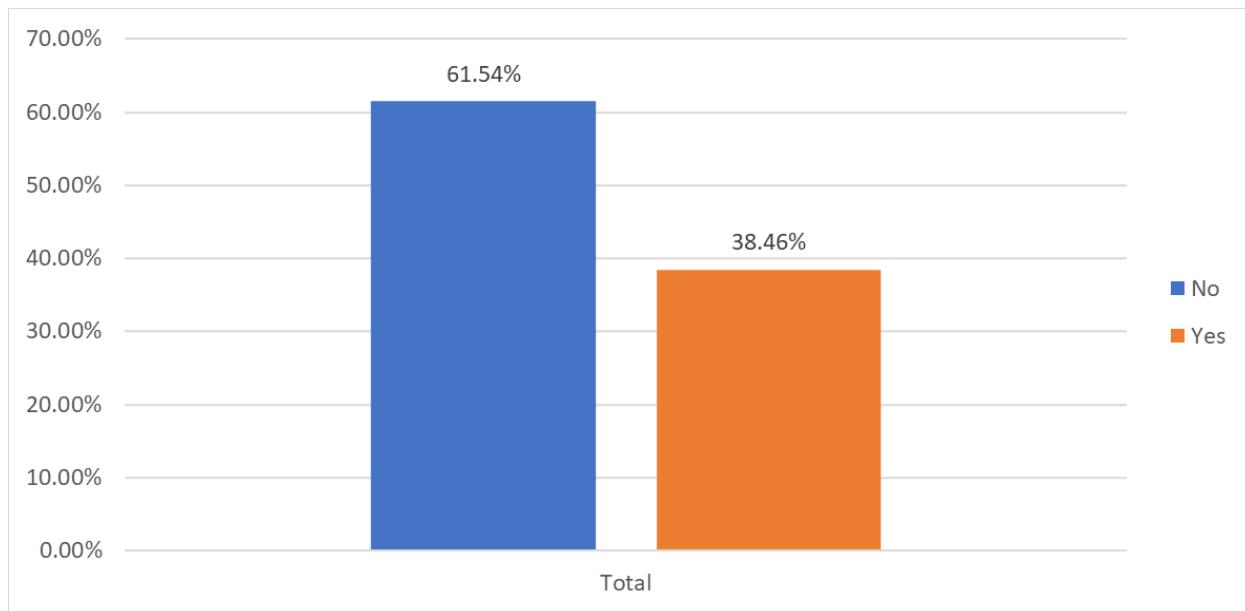
Table 2: Responses recorded from contextual inquiries in an excel sheet

#### 1. Are you aware of the Health Fee?

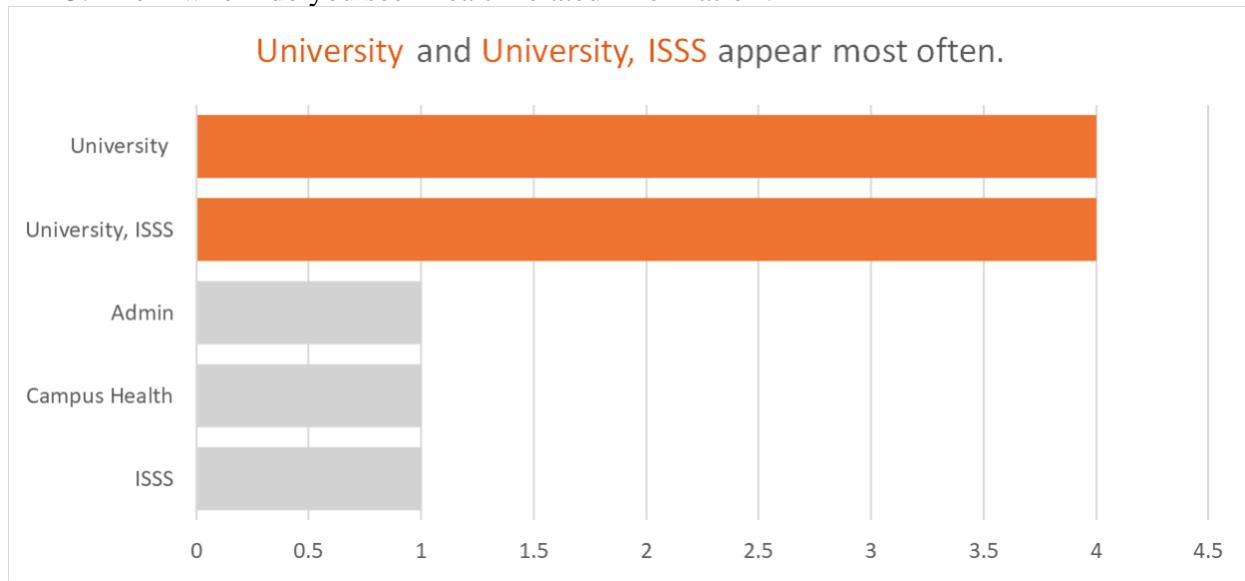
Yes accounts for the majority of 'Are you aware of Health fee?'.



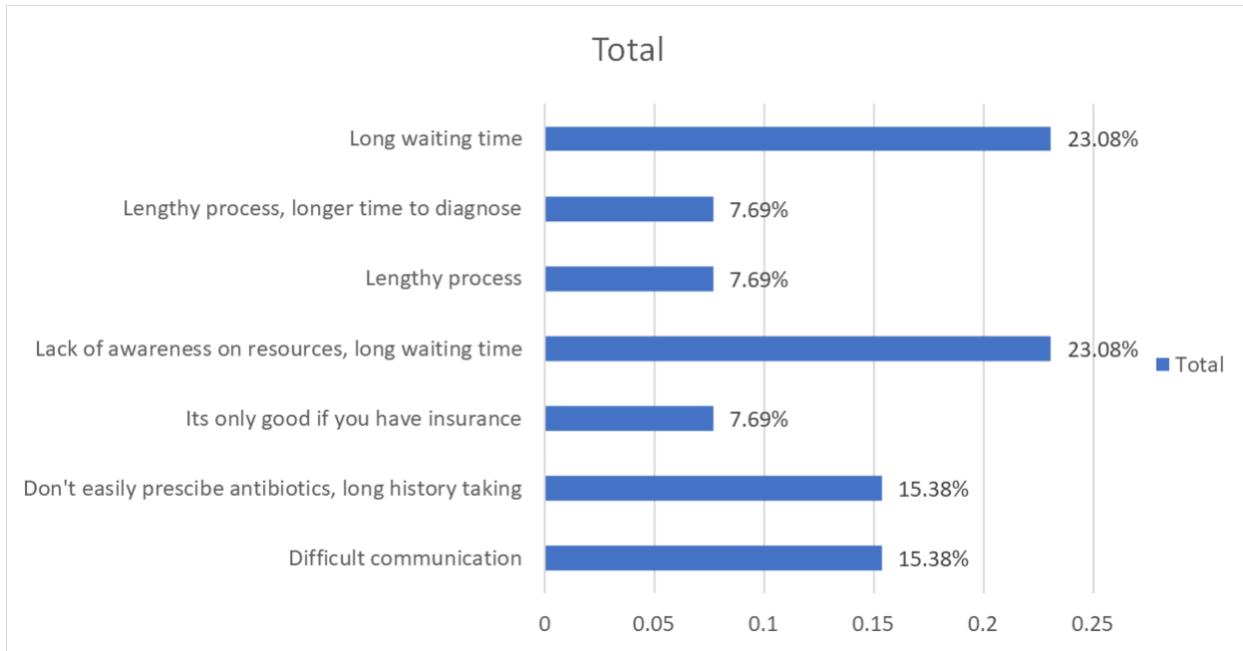
#### 2. What services are included in the Health fee?



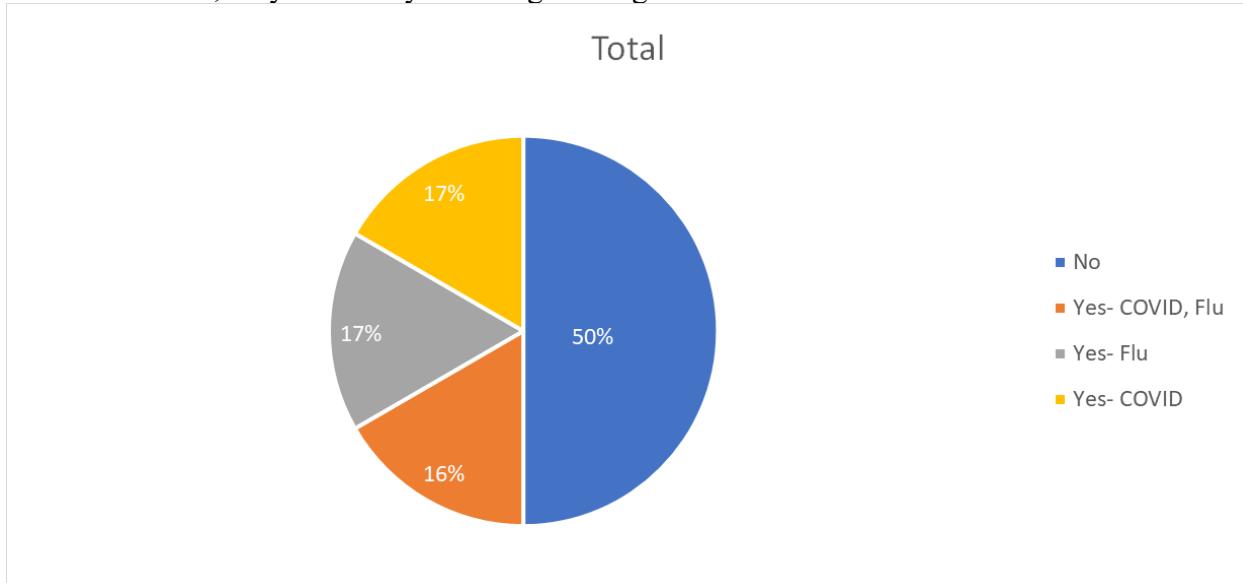
### 3. From whom do you seek health related information?



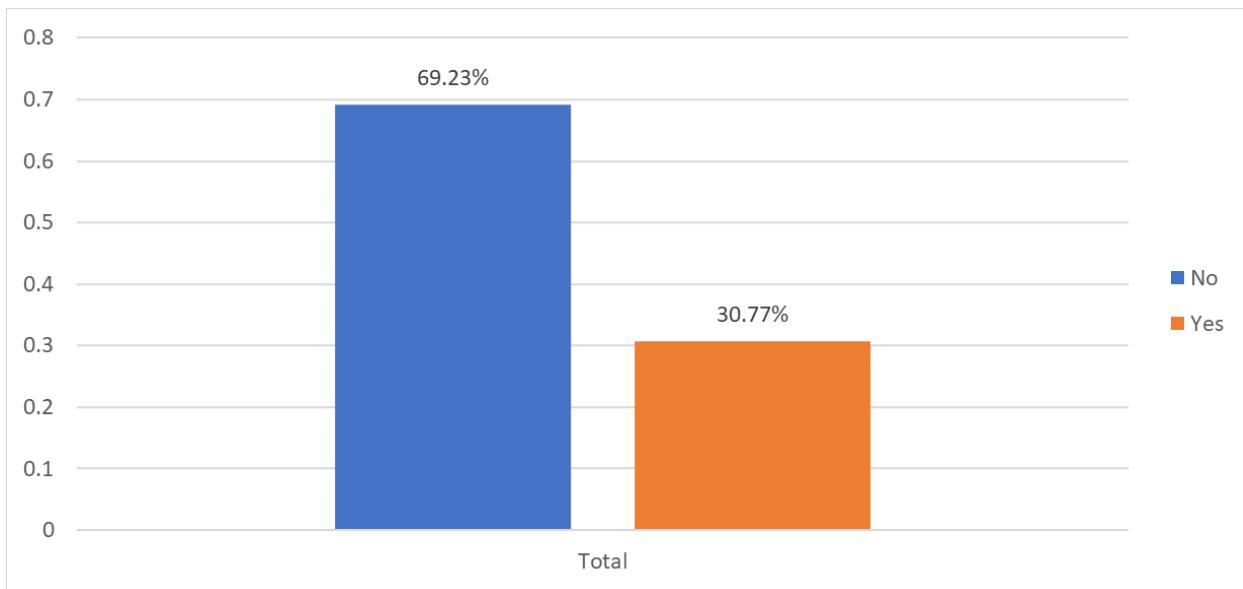
### 4. What differences have you noted in the care offered in your country as compared to the US?



5. If BCBS, do you know you're eligible to get vaccines for free? Which are those?



6. Are you aware of all the services offered by Campus Health?



## Section 6: Team Appendix

### 6.1 Project planning

The table below summarizes the tasks, anticipated completion date and the group members responsible for the respective task. To ensure appropriate progress is achieved throughout the semester, we met twice a week online and once in person for the duration of this project.

Task	Team Member	Date
Choosing a problem statement	All team members	09/15/23
Finalizing the problem statement: Discussing views and opinions	All team members	09/19/23
Gathering information and sharing relevant resources	All team members	09/19/23 - 09/21/23
Assigning roles and responsibilities	All team members	09/22/23
Review Information Gathering Plan draft	All team members	09/26/23
Finalize report and presentation in preparation for submission	All team members	09/27/23
<b>Information Gathering Plan Due</b>	<b>Submitted by Adishri</b>	<b>09/28/23</b>
Send out questionnaires to subjects (students)	Anuradha	10/16/23

Analyze collected data	Jason	10/23/23
Finalize models to be used based on collected data	Adishri	10/25/23
<b>Project Draft Models Due</b>	<b>Submitted by Vidheesha</b>	10/26/23
In-person interviews with students	Vidheesha	11/09/23
Information analysis and brainstorming potential solutions	All team members	11/14/23
Solution feasibility and implementation	All team members	11/23/23
Draft final report	All team members	11/25/23
Discuss content for Presentation	All team members	11/26/23
Review presentation	All team members	11/28/23
Presentation dry run	All team members	11/29/23
Final Presentation	All team members	11/30/23
Progress check: Final report	All team members	12/05/23
Final report and Team evaluation due	<b>To be submitted by Adishri</b>	12/07/23

*Table 3: Tasks associated with the project and their completion dates*

## 6.2 Team organizational structure

In our virtual team meetings, we discussed our team's various approaches to collaboration and used the session to allocate tasks and roles for the project ahead. Once we analyzed the project's requirements and considered our unique strengths, we collectively determined which team members would take up specific tasks and roles. The RACI method was used to establish the organizational structure for our team.

Key: R = Responsible, A = Accountable, C = Consulted, I = Informed

Role	Jason	Anuradha	Vidheesha	Adishri
Project management	I	C	R	R
Document management	I	A	A	R
Meeting management	R	C	I	I

Team communication	C	R	I	I
Student contact	C	A	R	R
Interview lead	C	R	R	A
Data Gathering	I	R	A	A
Data Analysis	R	A	A	A
Editing and formatting	I	I	R	R
Model design	C	C	A	R
Presentation	R	R	R	R

*Table 3: RACI matrix representing individual responsibilities*

While we encourage all team members to engage and assess the work within each of the mentioned roles, we have assigned a specific team member to each role to ensure clear responsibilities and a primary point of contact. The table below highlights the role-specific duties and the primary team member responsible for each role throughout the project's duration.

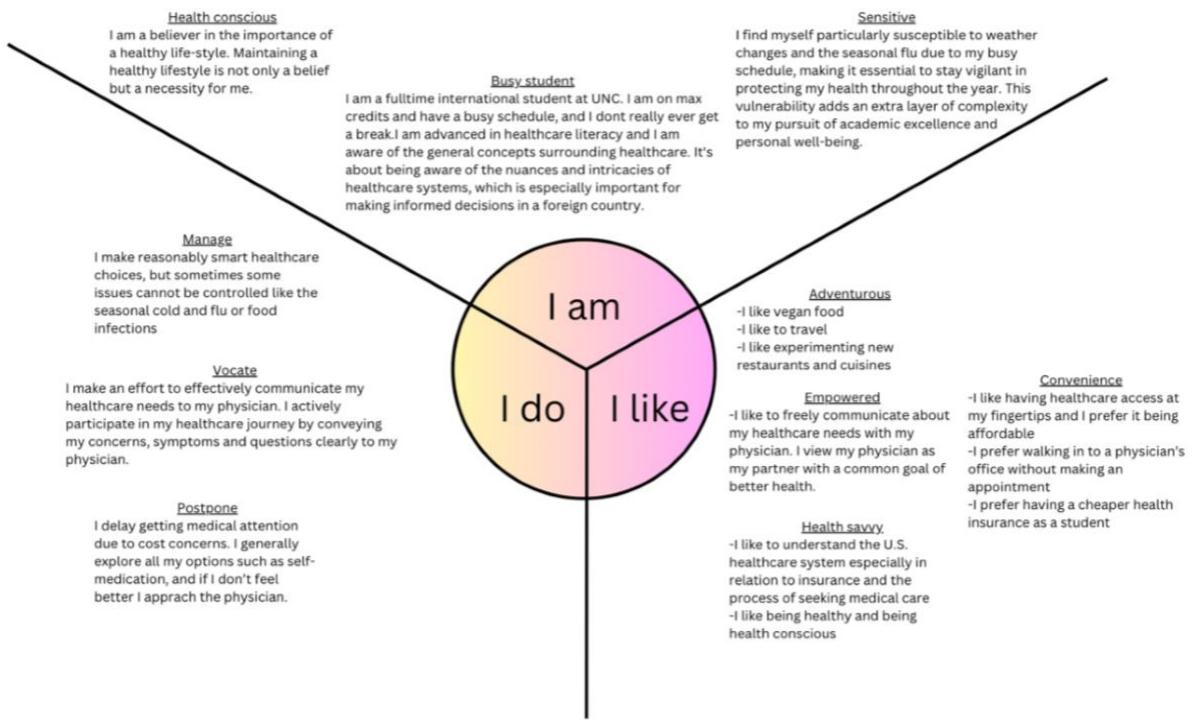
Role	Responsibility	Team Member
Project management	<ul style="list-style-type: none"> <li>• Plan the flow of the project and execution</li> <li>• Ensure the timelines for individual tasks are met</li> <li>• Managing and updating (if required) timelines for team tasks</li> <li>• Resource allocation and management</li> <li>• Risk assessment and mitigation</li> </ul>	Vidheesha, Adishri
Document management	<ul style="list-style-type: none"> <li>• Create and maintain project documentation</li> <li>• Ensure that all project information is well- documented and updated</li> <li>• Organize and make project files accessible to team members</li> <li>• Assist with knowledge transfer and training materials</li> </ul>	Adishri
Meeting management	<ul style="list-style-type: none"> <li>• Schedule virtual and in-person project meetings</li> <li>• Take notes during meetings</li> <li>• Send list of key points to be discussed in the meeting</li> <li>• Moderate the meeting if the topic is being diverted</li> </ul>	Jason

Team communication	<ul style="list-style-type: none"> <li>• Ensure that all team members are on the same page w.r.t to the problem statement and facilitate clear communication</li> <li>• Address the team members if any miscommunication or communication gap is observed</li> </ul>	Anuradha
Client contact	<ul style="list-style-type: none"> <li>• Set up meetings with students (clients)</li> <li>• Circulate questionnaire with students</li> <li>• Inform the students about the purpose and expected outcomes of an interview</li> <li>• Information exchange with the team members</li> </ul>	Vidheesha
Interview lead	<ul style="list-style-type: none"> <li>• Conduct interviews and surveys with students</li> </ul>	Vidheesha
Data Gathering	<ul style="list-style-type: none"> <li>• Create questionnaire</li> <li>• Perform literature review and determine methods for information gathering</li> <li>• Interpret the information recorded</li> </ul>	Anuradha
Data Analysis	<ul style="list-style-type: none"> <li>• Analyze data from gathered information</li> <li>• Perform root cause analysis</li> <li>• Present a solution and workflow diagrams</li> </ul>	Jason
Editing and formatting	<ul style="list-style-type: none"> <li>• Compile individual documents to create a final report</li> <li>• Make edits and format the document as per requirement</li> </ul>	Adishri
Model design	<ul style="list-style-type: none"> <li>• Perform literature review of different models available for analysis</li> <li>• Select a model that best suites the selected problem statement</li> <li>• Implement and document the use of selected model</li> </ul>	Adishri
Presentation	<ul style="list-style-type: none"> <li>• Present important statistics about the Information gathering plan in the classroom presentation</li> </ul>	All team members

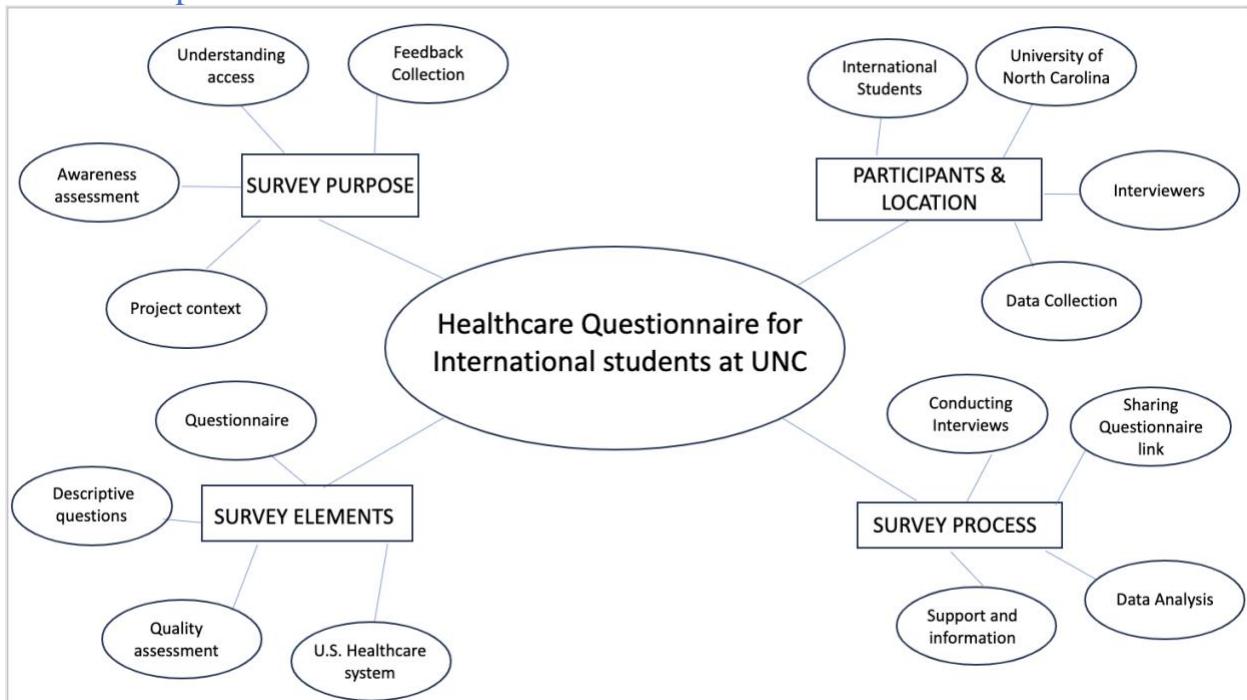
### 6.3 Draft models for the current system

The team created 8 models in total for analyzing the current system out of which 2 models were finalized (*see section 2.1.3* )

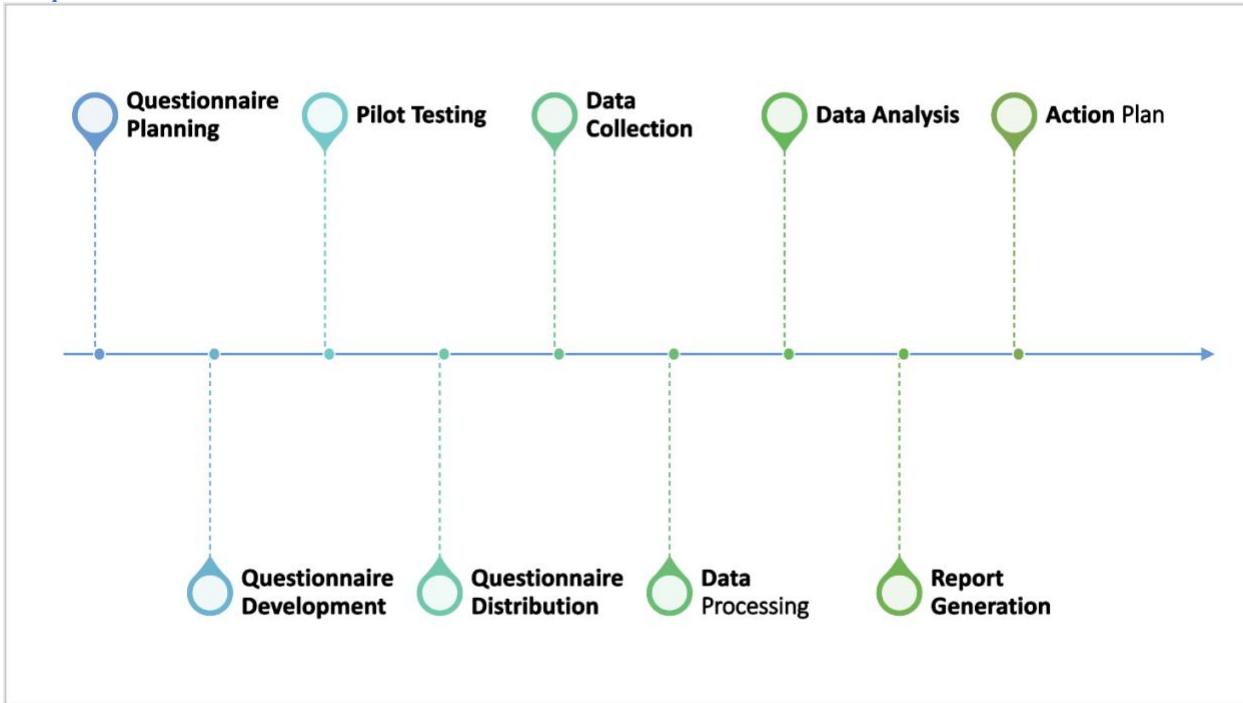
### Identity model:



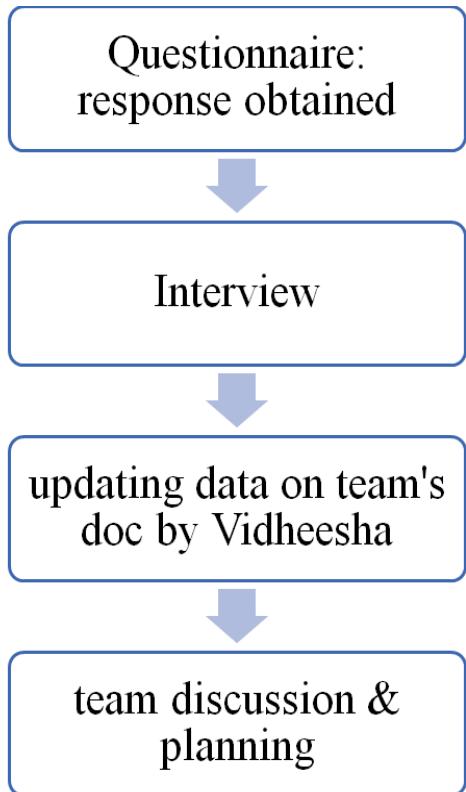
### Relationship Model:



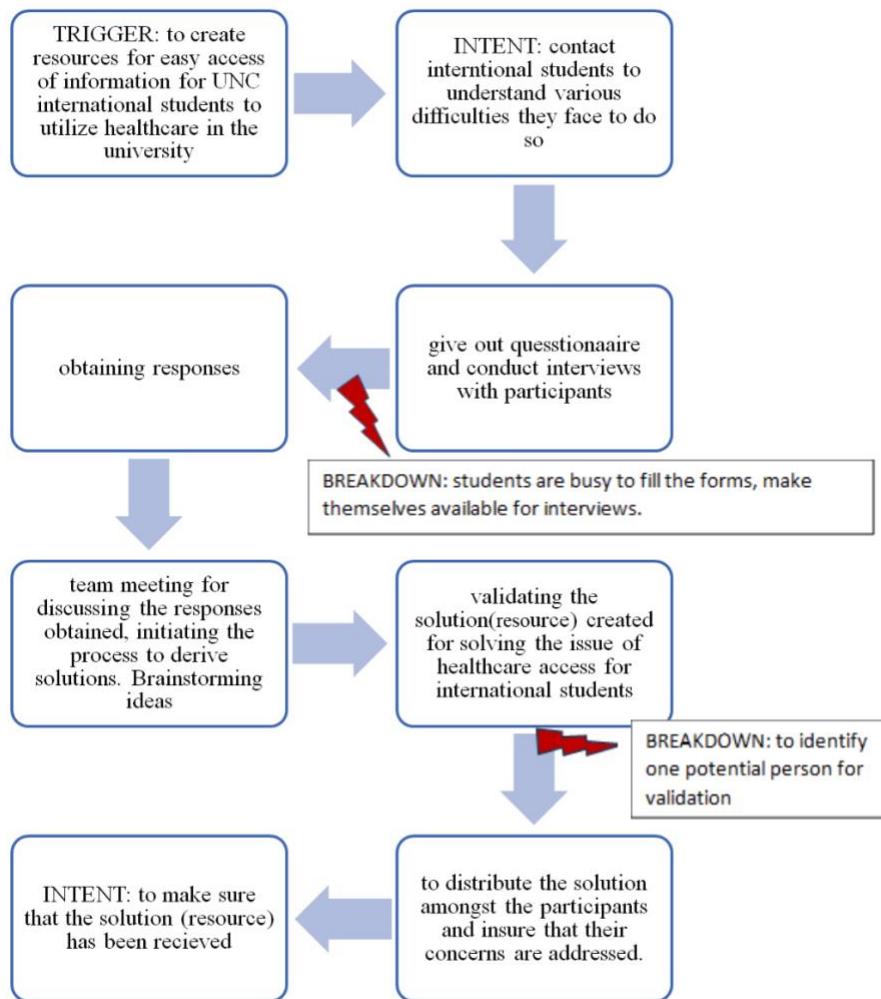
### Sequence Model 1:



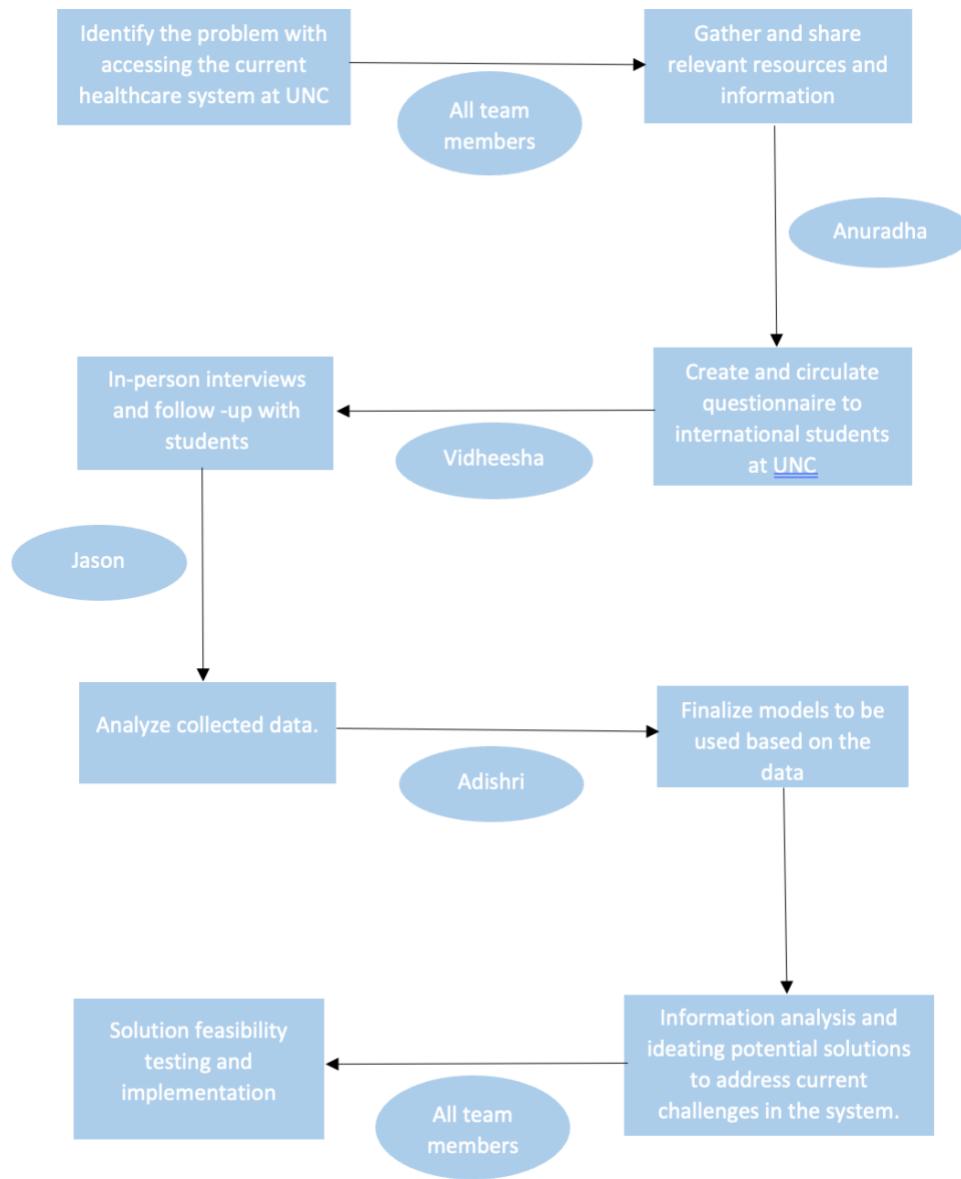
### Flow Model 1:



## Sequence Model 2:



## Flow Model 2:



### 6.4 Team members conducting in-person interviews with participants



## **6.4 Plan of proposal**

While creating the solutions for addressing the challenges with the current system, we proposed our initial plan to one of the managers at Campus Health and received positive feedback from her side. She also mentioned that this is a topic that wasn't highlighted so far but should be given equal importance as more international students join UNC Chapel Hill each year. Moving forward we plan to present the plan for the new system to the International Scholar and Student Service (ISSS) through an in-person meeting. The ISSS is one of the decision-making bodies which has control over most aspects related to International students at UNC. We believe that ISSS will take the necessary actions to consider and implement the proposed changes beneficial for International students.

## **6.5 Lessons learned**

As a cohesive team, our collective efforts were dedicated to conducting a comprehensive analysis of the systemic challenges within our environment, identifying breakdowns, and formulating measures to address these issues. Our overarching objective was to enhance the existing system by proposing a novel, more effective system.

Throughout the project duration, we honed our abilities to delve deeply into systemic issues, recognize breakdowns, and strategically implement solutions. Effective project and time management emerged as critical skills that we cultivated collaboratively. Given that our project stakeholders were international students within our cohort, organizing in-person meetings for contextual inquiries posed a logistical challenge. Despite this, we adeptly conducted extensive inquiries, underscoring our team's adaptability and flexibility in modifying our approaches as necessitated by circumstances.

The research phase significantly expanded our perspectives as we delved into the analysis of the current system. This process not only broadened our understanding of stakeholders but also provided valuable insights into the intricacies of the existing system.

Subsequent to the initial data collection, which included the administration of questionnaires, our team convened in structured meetings to fortify our second phase. Engaging in constructive discussions, we meticulously finalized follow-up questions for semi-structured interviews, conducted thorough data analysis, interpreted the findings, and collaboratively proposed recommendations for the new system.

In the final phase, each team member played an equitable role in both crafting a compelling PowerPoint presentation and distributing the workload evenly for the composition of the final report. Our collaborative efforts underscored the strength of our team dynamics and our commitment to delivering a thorough and professional outcome.