# Single point hub for clinical patient interactions Assignment M1 (Summer 2021)

Manish Shivani
mshivani3@gatech.edu

***Abstract*— In the current health care system, we have pharmaceutical companies researching, marketing, developing, and distributing critical, essential and specialty medications. What most of the big pharma companies lack is the platform or the single hub where patients and clinical nurses can get all the information required to support drug brand. In this project I will design an application which will help build awareness for the medication among the patients. It will also provide clinical outreach to patients for any drug related support or specific questions regarding medications. The platform will provide patients a positive and simple onboarding experience which will help pharma companies to increase enrollments in medication program. This will be the generic platform/plug-in which could support all critical and specialty medications programs like oncology, asthma, arthritis etc.**

## 1 PROBLEM SPACE

Pharma drug programs uses nurse educators to manage individual patient interactions. Nurse educators collect individuals and perspective patient's information, they explain the program benefits to patients and facilitate the completion of the enrollment. Now patient expects continuous engagement and brand related support from nurses specifically those patients' group which are enrolled for critical or specialty drugs. In the current scenario nurses aligned to the patients are not able to reach out to individual patients and provide for example on call support for medications related questions, notifying patients regarding injection, drug refill reminders or prior authorization approvals etc. The reason being we don't have enough nurse educators trained in specific clinical areas for example oncology etc. which can provide manual on call timely support

to thousands of patients. This is the reason most of the pharma companies struggle to increase patient enrollments.

The solutioning for above problem space requires developing a platform which can help increase patient engagement with nurses. Now nurses do collect the individual and perspective patient's information which includes capturing PHI (Protected Health Information) and PII (Personal Identifiable Information) information under HIPAA (Health Insurance Portability and Accountability Act) guidelines for example patient phone number, email address etc. This solution will help increase utilization of nurse educator services by automating the clinical patient interactions. For example, solution will set up real time automated interaction with patients via email and text messages. If patient prefers to talk to the nurse, they can reply on program enrollment text message triggered from aligned nurse. The solution will notify aligned nurse and they should be able to see the exact patient response and provide immediate support in case of emergency. Due to significant volume of the outbound calls, solution will set up Interactive voice response auto reminder for the patients who are not opted in to receive text or email reminders.

## 2 USER TYPES

User types for this project will include nurse educators, patients, and individuals. Even though the platform will primarily be used by nurses to help increase patient's engagement. In the broader context patients will help nurses provide solution definition by providing inputs and feedback related to clinical interactions modes and the required brand support. The solution will target the nurse and patient population spread across US Time zones and will ensure that any auto triggered communications for patients should consider the patient time zone. For example, if nurse is in EST zone and patient is in PDT zone, patient should receive text or email messages in regular business hours and not early morning hours. Patient population could also include patients <18 years of age depending on the medication prescribed.

Nurse educators will be motivated to involve in design process as solution will reduce manual burden on nurses considering significant volume of the outbound calls. Nurse educators will be able to build awareness for the medication targeting new individuals and will be able to increase enrollment in the medication program. Enrolled patients will be motivated as they will receive continuous brand support specifically those patients who are enrolled in costly medications. New Individuals will be motivated to contribute to design process as solution will provide a positive and simple onboarding experience.

## 3 NEED FINDING PLAN 1 – NATURALISTIC OBSERVATION RESEARCH METHOD

I will select Naturalistic Observation as first need finding plan research method. The method involves observing users in their natural settings. As per my project problem space, I will perform observations on nurse educators, for example from a clinical operations center from where nurses operate and reach out to patients via on call support. Following are the steps I will perform for my research:

1) Taking Notes: While observing the nurse's daily routine I will capture notes watching daily routine of the nurses. I will gather information in what scenarios nurses are required to reach out to patients. For example, nurses wanted to call the patients to let them know that they are due for their Injections and/or drug refill reminders. Nurse might want to interact with the patients to notify that their insurance information is incomplete on file.

2) I will note down all the actions performed by the nurses during the day. This will help interpreting the current workload on the nurses and hindrances they face in reaching out to patients. There is a possibility that with in the current workload nurses might be able to reach out to patients, but patients might not be available to answer call from nurses.

3) While observing the nurse educator daily operations, I will ensure that I gather information from different nurse educators for example there might be a nurse supporting oncology patients and another nurse operator might be providing support to asthma patients. Workloads and patient interactions might differ for both the nurses as per their specialization, for instance, daily patient support call

volume could be significant high for asthma patients because they could range from 6 years to 60+ years. Observing nurses in small 10–15-minute sessions might help gathering different data sets.

4. I will observe along with a partner, this will help comparing the qualitative and quantitative results post observation and help reviewing the interpretations in the same scenarios.

5. I will ask the questions to the sample nurse user population in more targeted need finding exercise. Along with the observations, I will include the questions like what the context in which nurse is will have to interact with the patients. What is the goal we are trying to achieve while reaching out to patients? Is there any need to improvise the current patient interaction process.

Above steps or plan for naturalistic observation needfinding exercise ensures connectivity to following items from the data inventory:

- Who are the users?
- What is the context of the task?
- What are their goals?
- What do they need?
- What are their tasks?
- What are their subtasks?

**3.1 Potential biases in Naturalistic Observation needfinding exercise:**

1) Social Desirability Bias- In the above need finding exercise nurse educators might behave differently than they normally would, they might try to appear more socially desirable to me (an observer). Now this bias is very difficult to eliminate. I will have to make effort to ensure nurse educators observed behave normally by hiding and try to collect more objective data.

2) Confirmation Bias – Participants i.e., nurse educators might change their behavior to align with what I as an observer might hope to capture in the process. I will limit the impact of confirmation bias by involving multiple individuals in the needfinding.

3) I and my partner could draw different conclusions observing the same sample of nurse educators and their actions. We could avoid this bias by capturing detailed notes of nurse educator actions and requesting peer review of the interview scripts.

## 4 NEED FINDING PLAN 2 – PARTICIPANT OBSERVATION RESEARCH METHOD

I will select Participant Observation as the second need finding plan research method. Now I see participant observation is the variation of the naturalistic observation needfinding research method, where the observer becomes part of the group in order to get the deeper insights in the role of the user. In this scenario, I will temporarily join the clinical team in order to better understand patient nurse interaction. I will play the role of the nurse and try to capture the data for example average daily patient call volumes in a day, number of injection and refill reminder calls made by the nurses. How does the new patient enrollment impact the currently enrolled patients? Does nurses have to spend more time in completing enrollment process of new patients and therefore might not be able to cater to questions from existing enrolled patients. Will existing patients plan to discontinue manufacturer's drug use because of lack of patient support. I also learned that my design will be effective and help reduce current burden of the nurses by auto triggering text or email messages to patients and capturing inbound response. The important point being nurses are not required to call every patient, some of the interactions could be handled by sending text/email notification to patients.

The Participant observation need finding exercise can be completed as covert or overt research. As part of the covert research, I will hide my real identity and will complete my research as a clinical nurse participant. While as an overt observer I will reveal my true identity to clinical operations team and will ask permission to observe and participate. As we observed, participation observation needfinding exercise ensures connectivity to following items from the data inventory:

- What are the goals?
- What do users need?

- What are users' tasks?
- What are users' subtasks?

### 4.1 Potential biases in Participant Observation needfinding exercise:

1) In case of covert participant observation needfinding exercise I might not be able to take notes openly which might introduce Confirmation and Recall bias in the research. Because I was not able to capture notes, I might conclude the design as what I want to see instead what is expected by users. I also might not be able to recall what specific actions were performed for instance patient clinical interaction in this scenario. This can lead to misleading and incorrect data. These biases can be controlled by ensuring proper notes capturing and participating in multiple forms of needfinding.

2) In the scenario where the I become too involved, I may lose objectivity and become bias. This might again introduce the confirmation bias as I will see what I want to see. I might selectively report information which can lead to misleading and incorrect data. This can be controlled by involving multiple individuals in needfinding.

## 5 NEED FINDING PLAN 3 – SURVEYS

With naturalistic and participant observation methods for needfinding requires significant amount of time and effort to observe behavior of pretty small sample. But when I am designing my application, I have to ensure usability across broader audience which in my case will be clinical teams supporting multiple pharmaceutical companies across united states and are specialized in providing patient support for specific medications example for oncology, asthma, arthritis etc. The surveys related to clinical patients' interaction will provide me large sample of data and that too at a fraction of cost and effort compared to naturalistic and participation observation methods. While creating surveys I will ensure that my survey questions are clear, concise, specific, expressive, unbiased, and usable.

For example, I will include following questions for surveying nurse educator and patient population:

Question 1 (for Patient) From 1 to 5 rate your satisfaction with clinical support provided via drug program

01 – Highly dissatisfied
02 – Dissatisfied
03 – Neutral
04 – Satisfied
05 – Highly Satisfied.

Question 2 (for nurses) How many times (approx.) in a month do you contact each patient:

- 0-1
- 2-3
- 4-5
- 6-7
- 8+

Above steps or plan for surveys needfinding exercise ensures connectivity to following items from the data inventory:

- Who are the users?
- What is the context of the task?
- What are their goals?
- What do they need?
- What are their tasks?
- What are their subtasks?

**5.1 Potential biases in Survey needfinding exercise:**

While creating the survey questions I have to understand that less is more, I won't be laying stress on capturing detailed points as compared to naturalistic observation method. Most importantly, I have to be aware of the biases which can be introduced in surveys.

a) Sampling bias – In order to avoid the sampling bias, I have to ensure that survey respondents randomly selected, and survey is distributed across nurses and patients so that both will get the chance to respond to surveys.

b) Non-Response bias – I can try to avoid the sampling bias in a survey but still there is no guarantee that survey will be systematically and equally answered by different groups or sets of people for examples nurses, patients etc. The only solution is, in order to avoid the bias, I should try to get maximum number of responses from individuals. More the responses received, less will be the bias.

c) In surveys, I will ensure that the questions designed are trying to capture the real opinion of individuals instead of agreement or disagreement questions. Because otherwise a bias might be introduced in survey as most people tend to agree. Therefore, it is extremely important to focus on respondent's point of view.

## 6 REFERENCES


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