

CLINICAL TRIAL

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ABSTRACT

It is believed that technology and development have reached heights but even today, there are a few sectors like our Health Care sector where patients often have to wait for a long duration before getting treatment. This wait is sometimes too long for a patient to survive.

This clinical trial intervention aims to provide a feasible solution to the existing problems in the Health Care sector. The objective is to provide a hassle-free and user-friendly application which would help both doctors as well as patients to save time and resources. There are several problems in the medical sector of our economy, some of which we managed to discover as an upshot of our trek to a nearby hospital. Our interaction with a number of patients and doctors steered our focus to one specific problem which seemed quite general and unresolvable, the long OPD queues which seem ceaseless for hours altogether.

INTRODUCTION AND MOTIVATION

There are several medical disorders whose severity cannot be interpreted or perceived by common people. Most of the times, people presume that they don't require any medical treatment and end up taking their medical conditions too lightly. The major reason for this is the trouble they have to face while waiting in long OPD queues. They prefer taking some common antipyretic tablets in case of high fever for instance, rather than consulting a doctor.

There are several cases reported every year which show that a timely treatment could have prevented worse conditions and the ailments could have easily been cured in earlier stages.

There are several parameters such as blood pressure, body temperature, BMI, pulse rate and respiratory rate which are easy to measure and can be really helpful in the detection of the level of severity for medical conditions such as Flu, Typhoid and road accidents. Although the parameters are well known and easy to measure, several people lack the knowledge and resources required for diagnosis.

BACKGROUND

As a part of our trek, we chose to visit VPS Rockland Hospital, Dwarka, New Delhi on the 20th of January, 2018.

The hospital offers a bouquet of services which includes specialties like Internal Medicine, Surgery, Pediatrics, Obstetrics and Gynaecology. It also stands proud for its capabilities in handling Interventional Cardiology, Joint Replacement and Neuro-spine.



Had it been an ordinary private hospital, one would have expected to see just a few patients with absolutely no problems in management and functioning. But considering the fact that it also comes under the Delhi Government Employees Health Scheme (DGEHS), it has loads of government servants as well, and hence the hospital is generally flooded with patients just like a common government hospital. Due to the above stated reason, we could see people from all social and economic backgrounds with diverse kinds of health issues.

As in any hospital, the ambience there was a bit quiet and depressing. A patient always enters such medical setups with some anxiety, preconceived notions or fears, which can make the patient's experience depressingly unforgettable. To avoid this and reduce stress levels experienced by an already ailing patient, a good ambience along with some interaction and communication with the patients can help the patient forget his fears and anxieties. As a patient spends more time outside than meeting the physician, the ambience plays an important role in keeping the patient comfortable.



The staff members were cooperative. We spoke to several people and discussed various issues such as services, treatment cost, hospitality and staff behaviour. We also observed the overall functioning in various sections of the hospital.

Among other things, we observed a huge and persistent queue of people on the OPD visit counter. It didn't seem to lessen at any point of time. Infact, it was at it's peak between the afternoon and evening timings. We tried to interact with the people waiting there and asked them several questions.



There were several people who were willing to interact and share their experiences but there were several others too who seemed too busy and tensed, and refused to talk. We tried to analyze their behaviour, responses and opinions to figure out what all hidden problems could exist in a so called 'posh and upmarket' health care centre.

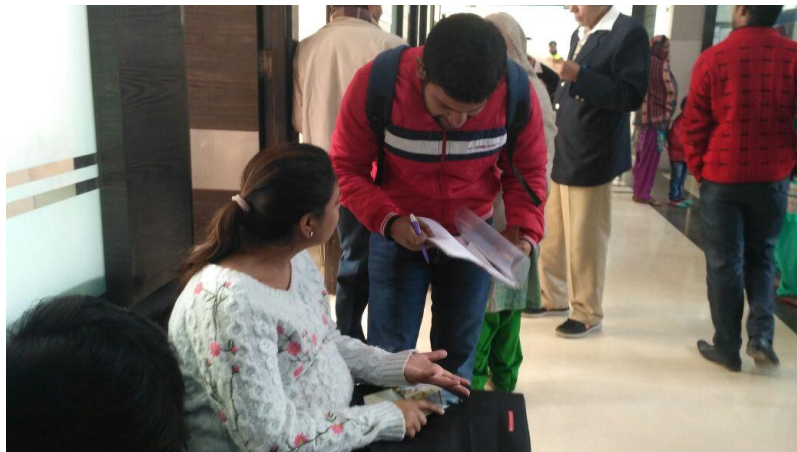
EXPERIENCES OF THE INTERACTION

We interacted with several people and asked them varying questions in accordance with our questionnaire and tried to find out what problems they faced that we could cater to.

There were many people who did cooperate and help us in our survey. We had a very unique and once in a lifetime experience of interacting with absolutely unknown people, listening to their opinions, problems and concerns. The striking point worth noticing was that most of the people were satisfied with all the other services and management but complained about having to wait in long OPD queues.



Although, they did believe that long queues and crowds are very common for a hospital and there's absolutely nothing that the hospital management could do to solve this problem.



Many people confessed that they found waiting in long queues absolutely pointless and a huge time waste. It was somewhere also responsible for their habit of procrastinating their visits as many of them couldn't afford the time and effort it took to see a doctor for seemingly minor ailments.

A nurse told us that the long queues on the OPD counter lasted all day and never seemed to diminish.



QUESTIONNAIRE AND ANALYSIS

We prepared some closed questions to be asked in our trek. These are some psychometric questions measured on a Likert scale (Marking on a scale of 1-5).

List of Questions:

Q1. How knowledgeable is the staff at this hospital?

Q2. How easy or difficult is it to talk to the staff at this hospital about your medical condition(s)?

Q3. Overall, how hygienic do you feel this hospital is?

Q4. Do all medical equipments work properly?

Q5. How comfortable is the lobby and the waiting area?

Q6. Did your appointment with your doctor start early, late or on time?

Q7. How easy or difficult is it to schedule your appointment at a time that was convenient to you?

Q8. How often do you go to the doctor when you are feeling unwell?

Q9. How often have you spent more than half an hour in waiting room?

Q10. How often were you able to get an appointment within 48 hours for an acute/serious problem?

Table 1. Raw Data(Marking on a scale of 1-5)

| Participant Name (Age) | Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 |
|---------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1. Mrs. Meena Sethi (30) | 4 | 3 | 4 | 4 | 4 | 2 | 3 | 3 | 1 | 4 |
| 2. Mr. Raghav Jha (23) | 3 | 3 | 5 | 4 | 4 | 2 | 3 | 2 | 2 | 3 |
| 3. Ms. Preeti Makkar (25) | 5 | 4 | 4 | 5 | 4 | 1 | 2 | 3 | 1 | 2 |
| 4. Mr. Shyam Das (67) | 4 | 4 | 4 | 5 | 3 | 3 | 3 | 4 | 1 | 3 |
| 5. Ms. Leela Jain (12) | 4 | 4 | 5 | 4 | 4 | 1 | 2 | 3 | 2 | 2 |
| 6. Mr. Raghav Sharma (41) | 5 | 3 | 5 | 4 | 3 | 2 | 2 | 2 | 1 | 3 |
| 7. Mrs. Parul Goel (44) | 4 | 4 | 5 | 4 | 5 | 2 | 1 | 2 | 2 | 4 |
| 8. Mr. Vijay Gupta (76) | 4 | 4 | 4 | 4 | 4 | 1 | 3 | 1 | 2 | 3 |
| 9. Mr. Rakesh Shah (60) | 4 | 4 | 4 | 5 | 4 | 3 | 2 | 3 | 1 | 3 |
| 10. Ms. Seema Kaur (18) | 4 | 3 | 5 | 5 | 5 | 2 | 2 | 2 | 1 | 3 |
| AVERAGE: | 4.1 | 3.6 | 4.5 | 4.4 | 4.0 | 1.9 | 2.3 | 2.5 | 1.4 | 3.0 |

PROBLEM IDENTIFIED

Scrutinizing the above collected data and observing the behaviour and opinions of people, we deduced that people were satisfied with the hospital's services but they also felt that the waiting time was a big issue.

The lowest averages were observed in questions relating to the "time" factor. It is not difficult to understand that everyone has several priorities and chores ranging from household work to their regular jobs. Finding time from extremely busy schedules is a very taxing thing and many people confessed having deferred their visits due to such reasons very often.

SOLUTION PROPOSED

(WORKING AND IMPLEMENTATION)

We came up with the idea of a CLINICAL TRIAL WEB APP. This app provides an absolutely easy to use and convenient platform that can help in predicting the condition of the user. The app would suggest the user whether he/she should be visiting a doctor or not.

This app would take as inputs, the health parameters of the user like Blood Pressure (BP), Temperature(T), Respiratory Rate(RR), Pulse rate and Body Mass Index(BMI). BP and temperature can be determined by using digital thermometers and sphygmomanometers which are generally available in several households. The app will also provide information to the user on how to calculate parameters like Respiratory Rate, BMI and Pulse Rate manually.

This app would then predict whether or not the user needs to visit a doctor. This can be achieved by developing a "Logistic Regression Model" which will predict the seriousness of the condition based upon the fed dataset.

The idea is to save the most important resource, "time" and that too in the most effortless and elementary way possible. By setting up a separate table outside the OPD counter to diagnose people who cannot afford such equipments at home or lack any sort of skills to measure the specified parameters, the queue can be simply split into two categories:

--people with serious medical conditions who need admission urgently.

--people who simply need to be prescribed medicines.

This would help save the time of both the above categories of people as well as the doctors to a very large extent. The OPD doctors would have to deal with a lesser number of patients now. The second category of people would find shorter OPD queues in comparison to earlier cases. And most importantly, the people having serious medical conditions wouldn't have to bear the trouble of undergoing 2 clinical trials, first in the OPD and then in the ward where they are admitted later.

Our app would be limited to 3 medical conditions namely Typhoid, Flu and road accident cases. There's a lot of scope of improvement by incorporating prediction mechanisms for other ailments as well.

We do anticipate that implementing this idea in hospitals would reduce several time related issues and help people overcome their habit of procrastinating when it is their health which is at stake.