Standardizing Healthcare

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Abstract

This research journal aims to challenge common perceptions and definitions of **quality**, **cost** and **value** in the *Indian Health Care System* through an in-depth critical analysis of the existing *industry institutions* and experience-based research derived from extensive interactions with all the *stakeholders* in the system - **consumers** (patients, family-attendants) and **providers** (doctors, management).

Post the 2008 global crisis which was followed by recession spanning over multiple industries, the past decade has seen massive digitalization and standardization of multiple industries driven deeper by internet penetration and technological progress. While there has been considerable innovation in healthcare technology and devices, the system as a whole still remains largely detached coupled with a **traditional disintegrated market** with little to **no standardization**. Through our substantial interaction with patients, their family, doctors as well as in-depth interviews with management at various hospitals spread across Delhi-NCR region, it became evident that the healthcare system in its present state was disintegrated consisting of *independently run institutions* of varying sizes catering to different as well as overlapping demographics, largely with *arbitrary pricing, no transparency, disproportionate wait-times, lack of feedback, ineffective payment mechanisms and little consumer protection.*

Moreover, this disintegration leads to a ***supply-demand gap***, associated with traditional unstandardized markets like the cab-hailing system before Uber/Ola and the hotel-reservation system before OYO, both of which faced similar problems of the lack of exposure on a *universal standardized platform* before their entry in their respective markets.

This leads to an **under-utilization of resources** in these institutions, thereby not allowing them to cater to as many patients as their existing infrastructure can accommodate and thus **lost revenues** which they could earn by adopting a differential pricing mechanism wherein they can utilize their vacant beds, out patient department (OPD) time slots and equipment to generate revenues by offering the above *unused resources* at a slightly lower cost than their market rate, thus, adapting to the patients' affordability while still remaining profitable.

Through this journal, we elaborate on the diverse **consumer insights**, critical **analysis** and extensive **market research** that we have indulged in, over the preceding weeks, to provide a concrete base of robust reasoning that enabled us to identify the various **pain-points** in the existing system which act as bottleneck to its progress and expansion, depriving millions of people of a **standardized high value healthcare experience** which prioritizes quality, transparency, consumer protection and convenience while allowing the existing institutions to cater better to a wider consumer-base and improve their efficiency and revenue models.

Introduction and motivation

During the market research on all the domains we wanted to analyse - **Education**, **Rural** and **Healthcare**, interactions with Mr. P.I. Sabu, director at CBSE; and a teacher of Divya Jyoti Niwas, a school for the blind, it was evident to us that the *Indian education system* has been receptive to technological innovation, in both public and private sectors. Initiatives like computer-assisted education, ICT based curriculum, with online learning platforms and virtual classrooms gaining widespread adoption, not just in urban areas; but in rural India as well.

Further, to analyse all the stakeholders in *rural development*, we interacted with Mr. Bunty Tanwar (farmer) and Mr. Puran (milkman) of Tigra village in Gurugram, as well as Mr. Vinay Pratap (Deputy Commissioner, Gurugram) and Mr. Vivek Kalia (MCG Commissioner and a graduate of NSIT). This allowed us to realise that there were existing modern agricultural devices and technology being used, such as seeders and uprooters. However, the major sector-wide innovation **requires government intervention** primarily, rather than new ventures; with initiatives such as Digital India programme - such as Aadhar, KYC, Unified Payment Interface, Jan Dhan Yojana, Digital Farmer markets, and increased information sharing - bridging the gap between urban and rural India. However, extensive interactions with the various stakeholders at Star Hospital, Arihant Hospital and Sunrise Hospital revealed to us as to how the healthcare system in India, dominated majorly by private players, had seen relatively little innovation in technology and market mechanisms and the more we researched on the incumbency, some striking features restricting the quality of delivery of healthcare services became apparent as documented below.

In the present scenario, the private sector of the Indian health care system is by and large a collection of independently functioning modules - in the form of compact clinics, nursing homes or full fledged hospitals. The disparate brackets of medical care cater to a specific stratum, yet face a challenge of either lack of resources for

proper provision of service; or on the contrary, incomplete utilization of existing pool of tools and expertise. The stakeholders, to whom the system caters to, are majorly restricted in the determination of their service bracket owing to their economic background, the lack of standardization, and the absence of a liaison between the grades of medical institutions.
Further, the advent of technology in the medical industry has been restricted to the actual act of treatment; focusing solely on modernizing procedures and innovation. The adoption of technology in determination and selection of services has only developed majorly to the extent of digitization of phone-books, which reflects the slow progress in this sector and the negligence shown towards the consumer in maximizing the ease of being a stakeholder in the industry. In addition, there is a large amount of redundancy present in processing a patient's records, and formally documenting them. The transfer of health data is something that is absent in most cases. Additionally, the medical industry has not adopted the cloud based system for the storage of records due to the non-existence of a central platform for communication and collaboration between these levels of institutions, which could save a lot of effort and time in the patient's medical future.

The main motivating factor which compelled us to take on the medical track, was the gaping negligence shown towards consumer comfort, patient-beneficial innovation, and the optimization of resources; in this largely service driven industry. As stated earlier, there is no central thread that brings the different grades of institutions on a common platform, fully knowing their functions and tasks could be perfectly complementary to one another. The service brackets of medical care each possess traits which are inveterately ingrained to them, and are arrantly suitable for the other. Further, the private sector of medical service has not pioneered into the phenomenon of normalizing care. Even with such conditions prevailing, there has been no effort or initiative taken by the community, to make the medical industry more patient-oriented and optimal in nature. Taking inspiration from the standardization of the cab-hailing industry through the introduction of Uber and Ola, and that of the hospitality industry through OYO; we decided to tackle the absence of a common platform in the medical field, and were prompted further to examine the same in detail owing to the tailor-made conditions for the inception of standardization, as mentioned above. We realized that technological innovation aimed at providing comfort to the consumer was virtually non-existent, and were strongly motivated for the provision of a comprehensive all-in-one software that bridged the gap between medical institutions and patients. The domain of healthcare and modifying the status quo is a challenge in itself, but the features identified by us that facilitated and drove our idea forward, acted as a trigger in pursuing this arena, and doing something beneficial for the community as a whole.

Background

The Healthcare sector in its entirety has universal pain-points which have limited the delivery of a high quality service to the consumers. However, being a traditionally private-sector dominated unstandardized market, the healthcare institutions currently in place, vary greatly in many dimensions. Firstly, an elaborate description of our categorization based on our market research and incumbency observation, has been substantiated with the social, regional, cultural, economic and structural parameters. Then the implications of such categorization on the market and quality have been established. Finally, the approach followed by the team towards research and analysis, tailored to prevailing sector conditions (such as this categorization) has been briefly described.

Though the existing Indian healthcare institutions represent a continuous scale-based spectrum, they can broadly be classified into one of the three major brackets based on the various parameters elaborated above.

Small-sized community-driven clinical establishments	**Medium-sized nursing homes & hospitals**	**Large-Scale Multi-Speciality centers**
Mainly Outpatient services	Less than 100-bedded capacity	100-500 bedded capacity
Primary health services	Secondary health services	Tertiary health services
No diagnostic labs, OT, ICU etc	Pharmacy, Labs, Imaging, OT, ICU	Super-specialized systems

Located universally in urban,semi-urban & rural regions	Concentrated in urban and semi-urban regions	Concentrated in urban regions
Cater to lower and upper-middle class	Cater to poor, working class and lower middle class	Cater to upper-middle class and elite class
Moderate Quality standards	Moderate quality standards	Highest Quality standards
OPDs primary revenue source	OPDs and Pharmacy/Diagnostics are primary revenue sources	OPDs, Pharmacy and inpatient services primary revenue sources

Although the above classification seems to be ideal at catering to different needs at the superficial level, a closer look reveals some of the major deficiencies existing in the sector which are detrimental towards the delivery of quality health services to those who need them. While *lack of uniform quality standards, geographical supply-demand gap and economic restrictions on choice of institution* are some of the apparent pain-points, on-ground interactions with the stakeholders further revealed practical deficiencies, as demonstrated in the following sections.

The research focussed on visiting institutions belonging to each of the brackets defined above. This validated the questionnaire response-data used to identify the problems by incorporating all the varying socio-cultural and economic stratas of the **consumers** as well as the **providers**(doctors, hospital managers). Further, the data was analysed on a case-by-case basis taking into account the diverse prevailing conditions in different brackets and then specific conclusive evidences were used to validate the final inferences.

Experiences of the interaction

The team's research trek consisted of an amalgamation of sundry patient interactions, unexpected responses and was indeed an eye-opening experience. The prime focal point was exposure to facilities available for consumers of all economic strata. This not only aided in being cognizant of problems of a variety of patient genres, but also enabled envisioning of a roadmap for critical problem identification before substantial planning, an approach that lended robustness to the problem identification and analysis.

Another focal point was to address all working categories of stakeholders including not only patients or doctors but right from the patient-attendants to hospital staff and management. The interaction with doctors post their OPDs revealed incidences of false-accusations by patients. This reaffirmed the notion that there was a general trust-deficit in the sector and any attempt to revolutionize it needed to have trust-building as a prerogative.
For a more objective analysis of the experience, it has been broken down on a case-by-case basis along with a generalisation at the apex becoming apparent.

Star Hospital : ***Large-Scale Multi-Speciality center***

Our visit to this place was mixed bag of takeaways: some of them resonated with our preconceived notions, but most of them were a revelation. The staff and overall atmosphere here, was cordial and welcoming. The satisfied faces of patients that we interacted with indicated the hospital's competence and professionalism.
Savitri, a nurse, emphasized on the unperturbed supply of equipment, medicines and the ready availability of a sterilizer unit for washing surgical instruments and bedsheets - making the hospital self sufficient.

A patient was found grumbling over the overcharged hospital bill. On further interaction, it was revealed that it was a case of consumable-charges being levied which gave the patient an impression of foul-play and inflated pricing. Another attendant told us about his experience of pre-payment of half the total cost of various diagnostic tests, before the actual treatment was carried out. We realised that the hospital did not hold back on the financial aspects, yet provided excellent services. The aspects were professional, yet there was a clear trade-off with costs. The

out-patient department timings were strict, with appointments being fixed beforehand as we could gather from the receptionist.

Our inference from the experience is that such Multi Speciality Hospitals have high availability of resources but their exorbitant charges are a barrier to entry for most patients, keeping the overall patient inflow well below the maximum capacity that such centers can accommodate ,thereby, forcing the equipments to remain underutilized most of the times leading to unrealised profits.

Arihant Clinic: *Small-sized community-driven clinical establishment*

Our experience here was far from what we expected. We anticipated a lurching crowd here, but instead we were greeted with an optimum number of patients. The treatment being provided - though not the very best, was quite affordable. One of the doctors explained to us that the middle class patients were the clientele, who went with a satisfactory treatment. If the hospital infrastructure is not good enough like in fatal trauma cases, the patients are asked to shift to some other hospital as the nursing home did not have the infrastructure for handling these scenarios.

Talking to the attendants, we found that they felt they were over-charged even for a mere dressing session to match the cost standards in the system. On further inspection, it became evident that the charges matched with those in other similarly sized centers, and this was a psychological bias of the patients. A very acute observation was that equipment and instruments were either unavailable, or in a bad condition at the clinical center. The techniques used were not always modern. For example, we noticed there were some instruments just washed via Savlon, and shared among patients unlike proper sterilization or disposal in big hospitals.

In a nutshell, some doctors here might not be highly qualified or experienced yet, but people from middle income bracket prefer to visit such places for outpatient services mostly due to ease of access and proximity to their homes. Only in cases of emergency, or intrusive procedures, do such people think of visiting full scale hospitals.

Sunrise Hospital: *Medium-sized institution*

This was the place that was the most congested with the highest intake volume of patients, contrary to our expectations. We suspect the concentration of majority of Indian citizens to lower middle class among the different classes as the primary contributor for the above. The majority of this clientele visited medium sized hospitals with facilities to treat common healthcare issues along with infrastructure to deal with trauma incidents.
Bringing this inference to its root, the interactions at Sunrise Hospital were subject to moods and experience of other attendants. With such a variety of patients, we found some were well satisfied while some were a bit fussy about certain things. But that general commonality observed among patients was that they went there because either they knew some doctor there who could get them treated quickly or they trusted a certain doctor based on past experiences with him.

Talking about infrastructure, it was qualitatively better than the community nursing homes. We did not get a chance to see the sterilization methods there, but we could judge that they preferred some outsourcing agency to wash their hospital clothware. We even noticed ICUs and imaging systems with proper conditions.
A word with patients told us that the atmosphere was a bit intimidating - with overcrowding and continuous patient flow. We even talked to doctors who told that they send very critical cases to multi-speciality hospitals as they do not have doctors to deal with fatal traumas, and lack expertise in minor surgeries. Moreover, serious cardiac and neuro cases were by no means their business as they lacked the experts of that area and minor consultancy was all that they could provide although diagnostic tests were easily available there.

Questionnaire

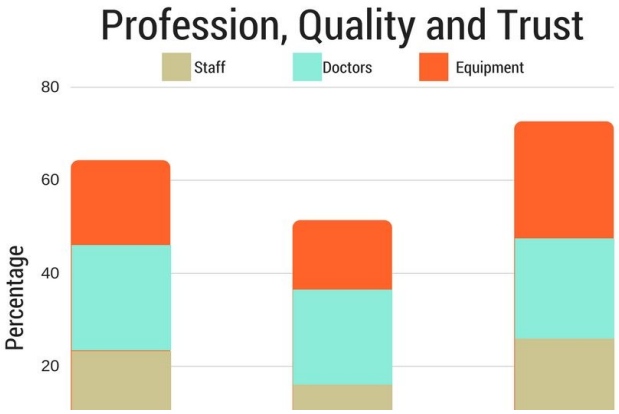
METHODOLOGY: *Flexible Likert scale* - The responses to questions would range from **0 - 5** , with 5 being the highest and 1 lowest, 0 if not applicable

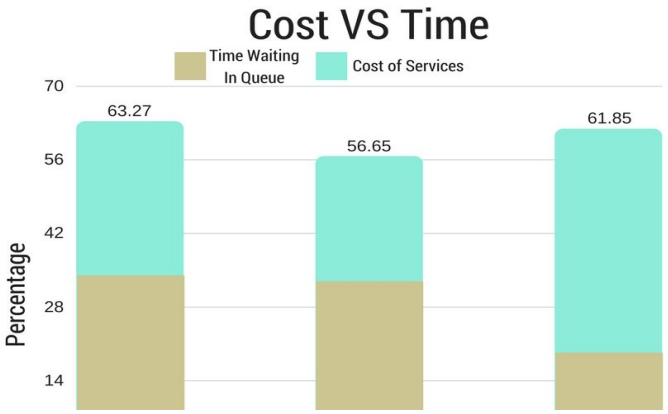
CONSUMER *(Patients, attendants)*

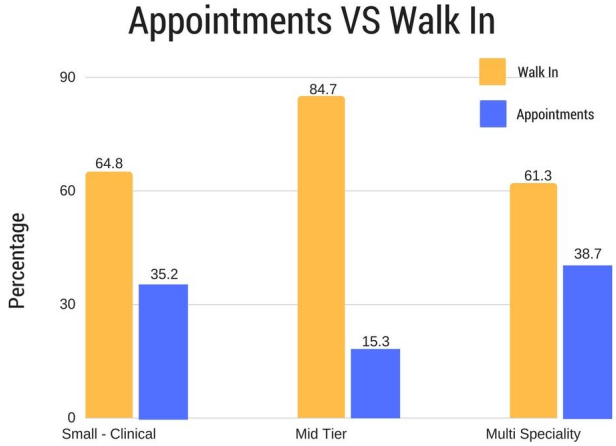
Age: < 18 years, 18-30 years, 30-60 years, >60 years
Gender: Male, Female, Other
Education: Illiterate , Can Read, Can Read and Write, Formal Education
Are you covered in any **Health Insurance Plan**?

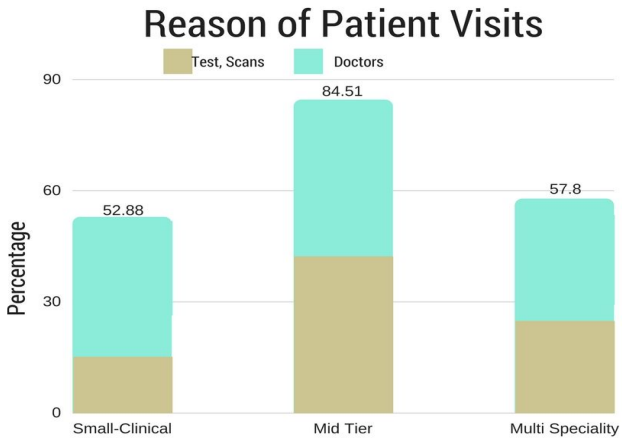
} General Background Data

Q1: What is Frequency of your visits to any medical institution in a month?
Q2: What is Frequency of your visits to any medical institution in a month for consulting Doctor?
Q3: What is Frequency of your visits to any medical institution in a month for availing other services like Testing, Scans, etc?
Q4: How would you rate arranging appointments for doctors?
Q5: How would you rate time you had to waiting in queue?
Q6: How would you rate the cost charged for your service (1 being very expensive)?
Q7: How would you rate professionalism of staff?
Q8: How would you rate professionalism of doctors?
Q9: How would you rate conditions of equipments used?
Q10: How would you rate conditions of the medical institutions eg, sanitation, basic amenities like water, food?
Q11: How would you rate your satisfaction after consulting the doctor?
Q12: How would you rate your satisfaction after using the equipments?
Q13: How would you rate your confidence and trust in the medical institution that you generally go to?
Q14: How would you rate the courtesy and treatment you were provided with?



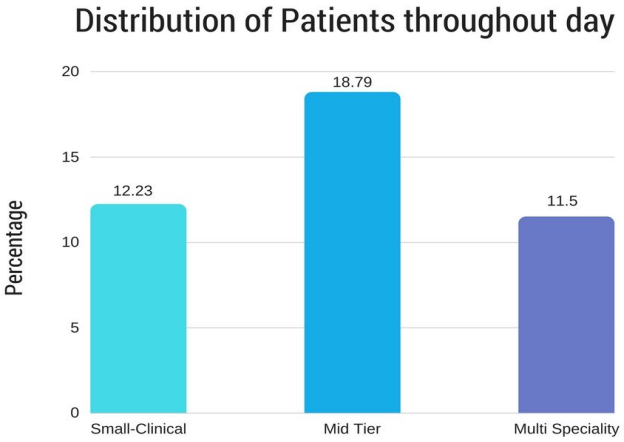


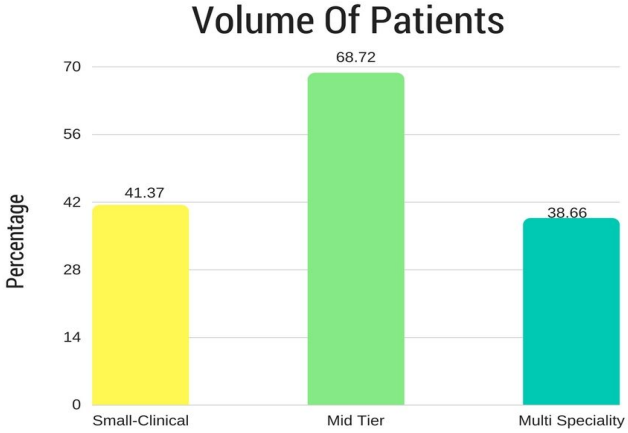


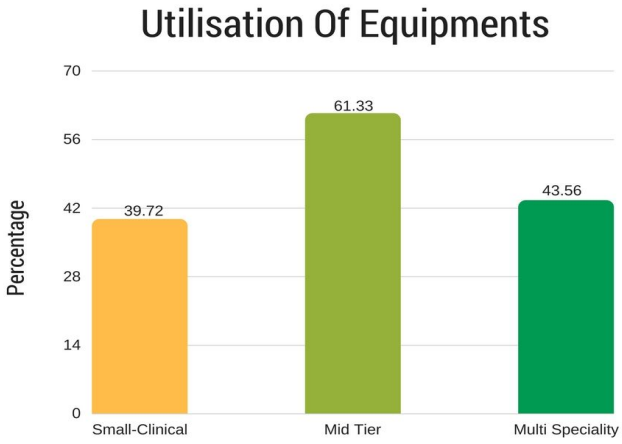


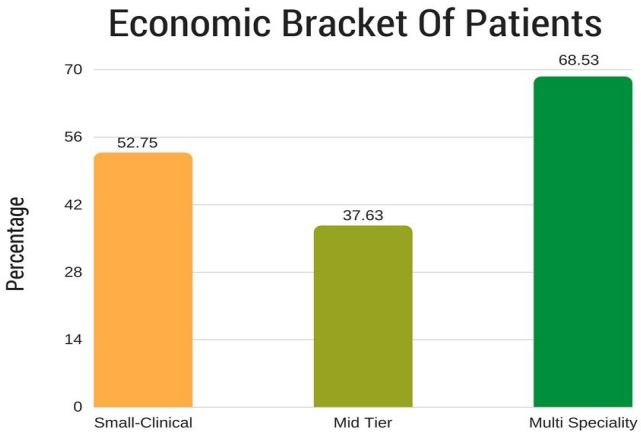
SERVICE-PROVIDER ***(Healthcare center - Doctors, Staff and Management)***
Ownership: Non - profit, Private, Government

Q1: How would you rate the economic bracket of patients that tend to visit your institution?
Q2: How would you rate the volume of patients visiting your institution?
Q3: How would you rate the behaviour your patients tend to show regarding your property and equipments?
Q4: How would you rate the utilisation of your equipments and services?
Q5: To what extent do you feel that the volume of patients is divided according to different time on clock?
Q6: To what extent do you feel you have shifted your paper reports electronically?









Problem Identified

The crux of the problem(s) that we identified is the society's and industry's **acceptance of the existing status quo** of the subpar conditions prevalent in the medical sector, due to no other alternative being proposed in the **structuring of the institutions**. Be it any of the service brackets, the institutions lacked and could not provide optimal care largely in the following sub-domains: time, quality, and finance.

Type of Institution	Problem Analysis		
	Time	**Quality**	**Cost**
Small-Scale	Considerable amount of waiting time, owing to the unplanned appointment schedules not being optimal and first-come-first-serve policy being adopted	Decent quality but limited to basic services, lack of equipment and expertise to perform complex procedures	Arbitrary and minimal transparency in pricing, same quality of services may have varying costs
Medium-Tier	High amount of waiting time, owing to virtually no relevance of appointment schedules and very large influx of patients	Compromise in quality occurs due to capacity overfill, and lack of understanding of doctors/ nurses	Most affordable pricing relative to the wide range of services offered
Large-Scale	Minimal waiting time at institution, especially if appointment made	High quality services but under utilization of quality of doctors and medical resources	Exorbitant pricing, to generate profit & balance out maintenance costs

One of the major problem, which optimizes the present conditions, is the absence of a **normalizing structure**, which would interlink the various modules formally. The absence of the same causes collaboration between the different levels of institutions to be impeded by the personal bias of the service providers, and a potential **umbrella-database is not accessible** for the patient, hindering the best possible care. Further, the shortcomings of one service bracket can be catered to by another. Hence, the most important problem that we have singled out and aim to solve is the **Lack Of Standardization** of the medical industry, which leads to a **Supply-Demand Gap** at individual levels in the system. The presence of such a common thread/ platform would efficiently counter the problem of maintaining a **database of a patient's past health records**, which can be efficiently re-used and used to *minimize* ***redundancy*** when required. The sub-problem that we aim to conquer through our proposition of standardization is the minimal penetration and adoption of technology into the domains of **consumer-side technology**, and **patient-institution interaction**. The emphasis on consumer-side sector is extremely pertinent and required in this service-driven system, which aims to solve problems such as the **lack of a proper feedback system**, and the dependency of a institution's reputation majorly on the word-of-mouth in today's world.