



PREDICTING NET PROMOTER SCORE (NPS) TO IMPROVE PATIENT EXPERIENCE AT MANIPAL HOSPITALS

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Kumar Rahul, Sandhya Shenoy and Professor U Dinesh Kumar, Professor, Decision Sciences and Information Systems prepared this case for class discussion. This case is not intended to serve as an endorsement, source of primary data, or to show effective or inefficient handling of decision or business processes.

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Patient experience is key to success; it is not about just achieving clinical excellence but also about achieving excellence in patient-centered care that would focus on responsiveness to individual patient preferences and needs, building relationships with patients, their families and caretakers as partners in health care delivery.

— Dr. Ajay Bakshi, Managing Director & Chief Executive Officer, Manipal Hospitals

Gopal Devanahalli, Chief Operating Officer (COO), of Manipal Health Enterprises (Manipal Hospitals), was watching streams of patients and visitors entering Manipal Hospital from his office at the Old Airport Road, Bangalore. As the COO, his primary responsibility was to transform the healthcare business of Manipal Health Enterprises (MHE) by applying cutting edge and disruptive technological interventions to achieve enhanced customer experience and delivery excellence.

Gopal was aware that customer centricity is the key to successful businesses. At MHE, customer feedback was one of the prominent ways to capture the voice of customer and was used to streamline the processes in various departments. Archana, the customer relationship manager (CRM) at MHE, and her team ensured that the feedback or concerns about departments, specific wards or staff were looked into immediately.

Until 2014, MHE relied on manual feedback forms to collect customer feedback (**Exhibit 1**). These forms were collected from inpatients, which accounted for approximately 30% of the patients' registrations in a month (**Exhibit 2**). Much time was consumed in collecting the manual feedback and reviewing them. The method was cumbersome as the data had to be manually fed by someone into the database system (**Exhibit 3**). Better management and processing of feedback forms was vital to improving customer experience and the customer relationship team always strived toward closing all the concerns. Nonetheless, addressing concerns was not considered as a closed loop initiative, primarily because patients were never informed that the MHE had acted upon their feedback. In May 2014, Ajay Bakshi the CEO of MHE, suggested to Gopal Devanahalli about exploring technology that can capture data in real time and quickly analyze the data and address any concern expressed by the patients in real time.

In June 2014, Gopal introduced iPads to collect customer feedback at the time of discharge. This initiative helped to collect data in a structured manner and translate into meaningful information which could be viewed real time on a Business Intelligence platform. With the introduction of iPad, the survey collection became easier and the questions were simplified and organized. A patient care coordinator (PCC) would visit the patient after discharge to collect feedback from randomly selected patients. This helped in improving the patient's experience of providing feedback.

Ajay and Gopal strongly believed that the word-of-mouth (WOM) is much stronger than any other type of promotion and thus it is important for MHE to keep customers informed about the improvements. With the improved system for feedback collection, he was confident of moving towards a more tangible outcome from feedback collection. Collecting Net Promoter Score (NPS) and tracking the trend of NPS was an integral part of patient care at MHE (**Exhibit 4**). He also believed that closing the loop is a central

theme of the Net Promoter Score and thus NPS should be pivotal to understanding the deficiencies in the system and improving it. Gopal said:

People usually believe that in a hospital environment, the primary relationship is considered to be between the doctor and the patient; Of course this is the primary reason people come to us; however in the eyes of a patient, all their interactions are important and each and every one may have a big impact on their stay.

Archana concurred with Gopal's opinion. She believed that the key to success was customer loyalty and advocacy, not merely satisfaction. Archana said:

In healthcare, perhaps even more than in other industries, loyalty has two dimensions – technical aspects and emotional aspects. Getting a fix on these two dimensions requires considering a patient's practical concerns like quality of care, premium facilities and adequate pricing as well as emotional issues like how well do they treat me, do they respect me irrespective of where I belong to, do they keep me informed and listen to me, etc.?

Gopal and Archana after a brief brainstorming session agreed that the traditional way of looking at feedback needed an overhaul. There was much to be done and there was scope to become pro-active and make changes effectively. They decided to use analytics on the data collected and use NPS as an effective tool to understand customer concerns.

ABOUT MANIPAL HOSPITALS

Manipal Health Enterprises (Manipal Hospitals) has been the corporate healthcare and hospitals entity of the Manipal Education Medical Group (MEMG), who are pioneers in the field of education and healthcare delivery. They have been the leading provider for medical education and health care in India and within the south Asian region. Manipal Hospitals, which was started in 1953, had the advantage of being the “oldest” healthcare group in the country. In six decades, the group could establish a reputation for being ethical and patient friendly. In 2017, Manipal Hospitals catered to around 2 million customers from India and overseas every year through their tertiary and secondary care facilities. In 2017, MHE managed an aggregate of 5,200 plus beds among 16 hospitals, over 13 locations across 6 states in India and one hospital in Klang, Malaysia. The Group's acute care flagship quaternary care facility located in the heart of Bangalore, India's IT capital was set up in 1991. The 680-bed Manipal Hospital at HAL Airport Road provided care in over 60 specialties under one roof.

Dr. Ajay Bakshi who was appointed as the MD & CEO of Manipal Health Enterprises (MHE) in August 2014 came with a rich experience to his credit. He had played multiple roles as a neurosurgeon, a stem cell scientist, a strategy consultant, and as Managing Director, CEO of a hospital network in North India over the last 2 decades before he took over this role. His appointment at Manipal Health Enterprises was

at a time when it was looking for aggressive growth and was making its way into North India and international markets.

CUSTOMER SATISFACTION AND NET PROMOTER SCORE

Quality care, good ambience, and compassionate people play an important role in promoting quick recovery for a patient. The healthcare industry's concern for the patient's experience of care began to form in the early 1980s. New metrics and methodologies such as lean and Six Sigma were employed to improve processes with a primary objective to improve patient experience. "Customer service" was being billed as the key to sustaining sales, client loyalty, and profits. "A satisfied customer will tell a few others; a dissatisfied customer will tell 10 others" was a common mantra of the new service consultants.

Ever since NPS was introduced to the business world in a 2003 *Harvard Business Review* article by Fred Reichheld,¹ based on research supported by Satmetrix, several companies have collected data and closely monitored their NPS as a leading indicator of their customer loyalty. According to Frederick Reichheld, it is important for every organization to know what their customers tell their friends about the organization. NPS is based on a single question: How likely is that you would recommend this company or product/service to a friend or colleague?² There are many variations of this question for all industries, the question work well in health care³ given the high level of emotion surrounding how to best take care of one-self and other family members. Customers score their responses on a 0-to-10 scale (11-point scale): Loyal promoters are likely to provide a score of either 9 or 10; passive customers provide a score of 7 or 8, while those who respond with a score of 6 or below are detractors.⁴ Subtracting the percentage of detractors from the percentage of promoters yields a single figure – the company's Net Promoter Score (**Exhibit 4**). Detractors are likely to spread negative sentiments about the organization among their friends and colleagues. Customers are likely to be asked few open-ended follow-up questions to provide information about why they rated the company that way. In the instance of Manipal Hospitals, there were few follow-up questions about different departments of the hospital.

Ajay and Gopal believed that NPS score itself is just the tip of the iceberg. The real value was provided by understanding what leads to the NPS score, especially the causes of detractors and promoters and asking follow-up questions on the reason for the score. It provided a gold mine of information.

INPATIENT DEPARTMENT AT MANIPAL HOSPITALS

With the phenomenal growth in Bangalore's vehicular population, the average journey time within the city had increased significantly over the last few years. It was difficult to move around quickly and many a time, ambulances were caught up in the traffic even if they had a protocol to follow. Thus, the central location of Manipal Hospitals was a blessing to many and the hospital had a good footfall by the day. In

¹ F F Reichheld, The one number you need to grow, *Harvard Business Review*, December 2003, 46-54.

² Ibid

³ Coffman J and Yale P (2007), Would you recommend this hospital to a friend? Bain & Company Report, http://bain.com/bainweb/PDFs/cms/Public/Would_you_recommend_this_hospital_to_a_friend_BB.pdf?cv=1

⁴ Ibid

addition, the goodwill it enjoyed dated back in time and people had a sense of belief that they would be cured if they consulted a doctor in Manipal Hospital. The general procedure for a customer to avail a service at Manipal would be to fill in a registration form. This entitled them to receive a Hospital ID with a unique identification number. A customer could avail services such as consultation, diagnostic services, out-patient services, etc. and all the interactions with hospital departments were recorded under the unique hospital ID. The length of stay at the hospital could range from a day to even a month.

Being a multi-specialty hospital, they managed to attract customers from across India. The patient's demographic details reveal that the hospital catered to patients from all over the country and not to forget the international patients who preferred getting surgeries done in India and especially Bangalore which is known for its good climate throughout the year.

BEST USE OF NET PROMOTER SCORE

In order to streamline the processes, MHE used customer feedback to integrate with the NPS regularly to understand the customers' willingness to recommend Manipal Hospitals to their friends and family (**Exhibit 5**). They believed that the patient's experience could offer information about the delivery and quality of health care and the feedback could be perceived as a reflection of what actually happened during the care process. It could also indicate if they are likely to visit the hospital again based on their experience and evaluation (**Exhibit 6**). Patients were asked to give the hospital an overall rating for the services, value for money and accessibility, and answer the NPS question, *"How likely are they to recommend the hospital to friends and family?"*

Apart from the mandatory questions, patient could choose a specific department and provide feedback for the 3 or 4 questions listed under that department (**Exhibit 7**). The responses to each of these questions were based on a 4-point Likert scale – which would capture the intensity of their feelings for a given question (**Exhibit 8**).

After the initial high-level review of the feedback survey and other related information, Gopal and Archana realized that the data could help deep dive into a gamut of opportunities ranging from in-depth analysis of department performance, staff or services offered, to improving the in-room experience or food and beverages section based on qualitative feedback. However, there were apprehensions on the quality of data as patients never filled up the entire questionnaire leading to missing information (**Exhibit 9**). In spite of this issue, there was a sense of confidence that the valuable data could drive some essential decision making. Few of the things which Gopal wanted to be answered are as follows:

1. How do we improve upon the data quality and use it for NPS prediction?
2. What are the significant factors influencing the detractors?
3. What are the significant factors which contribute to improving the NPS?
4. How do we find out improvement opportunities within the departments using the NPS score?
5. What all strategies can MHE use to deploy the analytical solution?

Predicting Net Promoter Score (NPS) to Improve Patient Experience at Manipal Hospitals



They believed that advanced analytics and machine learning can play an important role and provide an edge to MHE in this competitive business scenario.

Exhibit 1

Feedback form prior to March 2014

Sl. No.	Area	Parameters	Rate your satisfaction level					If you have rated below 2, we request you to kindly mention the reason/s
			Excellent 3	Good 2	Avg. 1	Poor 0	Not applicable	
1	Registration process	Time taken for Registration	<ul style="list-style-type: none"> 0-10 min. 	<ul style="list-style-type: none"> 11-15 min. 	<ul style="list-style-type: none"> 16 - 30 min. 	<ul style="list-style-type: none"> Above 30 min. 	NA	
		Getting information on services and process	<ul style="list-style-type: none"> Information is easily accessible Complete information Understandable information 	<ul style="list-style-type: none"> Information is easily accessible Complete information Information could be made more understandable 	<ul style="list-style-type: none"> Information is easily accessible In Complete information Not understandable information 	<ul style="list-style-type: none"> No information available 	NA	

Source: Paper feedback form, MHEE

Exhibit 2

Registrations and patients survey during March and October 2014

Months	No. of Inpatients
Mar-14	3290
Apr-14	3232
May-14	3225
Jun-14	3391
Jul-14	3879
Aug-14	3826
Sep-14	3884
Oct-14	3702
Grand Total	28429

Month	No. of Patients surveyed
Mar-14	782
Apr-14	744
May-14	1339
Jun-14	1590
Jul-14	1724
Aug-14	1835
Sep-14	2060
Oct-14	1818
Grand Total	11892

Source: Inpatient registration and Survey data

Exhibit 3

Conversion from registered customers to in-patients and surveyed participants

Months	Registrations	Registrations => IPD	IPD => Survey
Mar-14	11805	28%	24%
Apr-14	11126	29%	23%
May-14	11657	28%	42%
Jun-14	12273	28%	47%
Jul-14	13209	29%	44%
Aug-14	13168	29%	48%
Sep-14	13492	29%	53%
Oct-14	12774	29%	49%

Source: Patient registration, Inpatient admission and Survey data

Exhibit 4

NPS question – On a scale of 0 to 10, how likely is it that you would recommend our hospital to a friend or family member?



Source: <http://www.netpromotersystem.com/about/measuring-your-net-promoter-score.aspx>

Exhibit 5

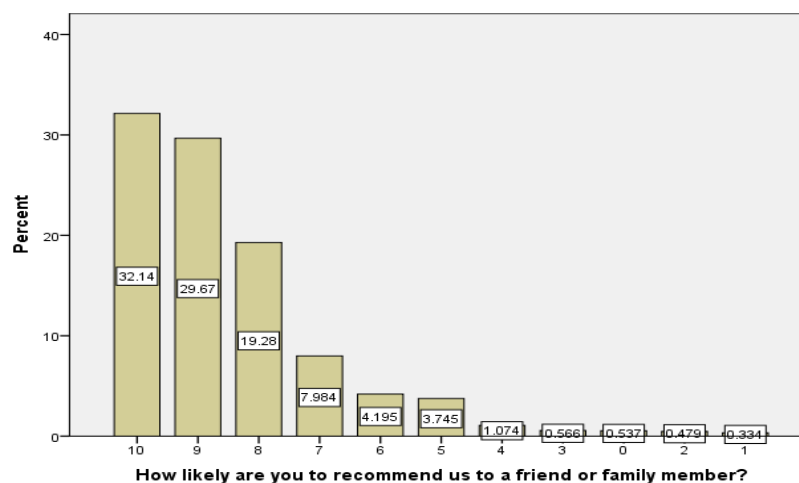
Feedback form after March 2014

Customer Engagement.		
	* Did you find us when you needed us?	1.Extremely Satisfied. 2.Mostly Satisfied. 3.Less Satisfied. 4.Not at all Satisfied.
	* Overall, were you satisfied with the services you received?	1.Extremely Satisfied. 2.Mostly Satisfied. 3.Less Satisfied. 4.Not at all Satisfied.
	* Did you receive overall value for money?	1.Extremely Satisfied. 2.Mostly Satisfied. 3.Less Satisfied. 4.Not at all Satisfied.
	* How likely are you to recommend us to a friend or family member?	10.Extremely Likely. 9. 8. 7. 6. 5.Neutral 4. 3. 2. 1. 0.Not At all likely.

Source: Organized feedback form, IPad, MHE

Exhibit 6

Responses to NPS question



Source: Customer Feedback Survey dataset (March 2014 – October 2014)

Exhibit 7

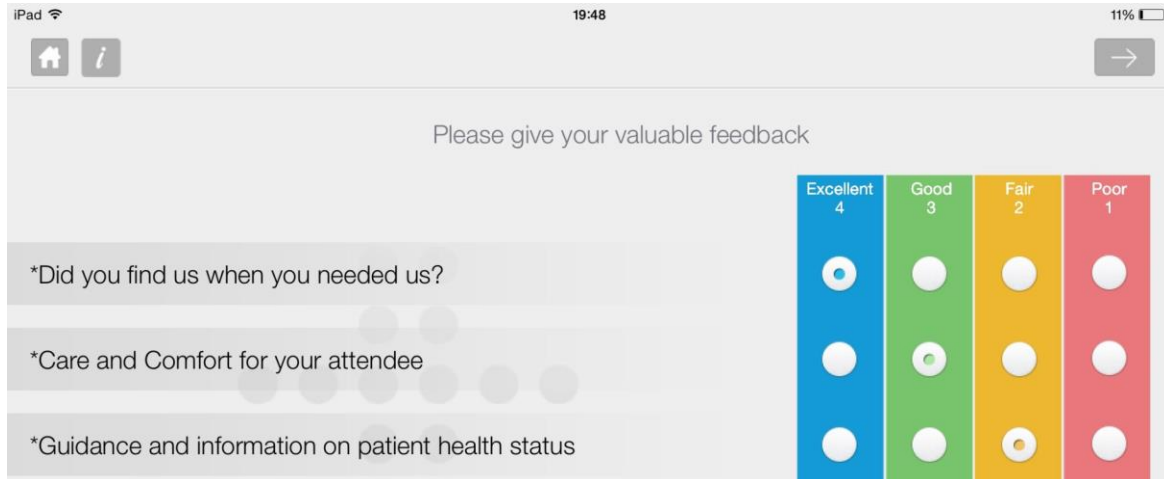
Questions in the Customer Feedback Survey

Department	QUESTIONNAIRE2	TARGETTED SECTION
Guest Information	Name of the guest	Guest name
Guest Information	Email ID	Guest email
Guest Information	Registered Mobile number	Guest contact number
Customer Engagement (CE)	Please help us understand the reason behind your rating	CE_NPS-REASON
Customer Engagement (CE)	Section for qualitative feedback	CE_COMMENTS OR SUGGESTIONS
Customer Engagement (CE)	Special recognition for particular staff	CE_STAFF RECOGNITION
Customer Engagement (CE)	Did you find us when you needed us?	CE_ACCESSIBILITY
Customer Engagement (CE)	Overall, were you satisfied with the services you received?	CE_CSAT
Customer Engagement (CE)	Did you receive overall value for money?	CE_VALUE FOR MONEY
Customer Engagement (CE)	How likely are you to recommend us to a friend or family member?	CE_NPS
Emergency (EM)	Immediate attention and assessment on arrival	EM_IMMEDIATE ATTENTION
Emergency (EM)	Nuring Care	EM_NURSING
Emergency (EM)	Doctor Care	EM_DOCTOR
Emergency (EM)	Overall Services at Emergency	EM_OVERALL
Admission Process (AD)	Time taken for admission.	AD_TIME
Admission Process (AD)	Explanation of tariff & packages available	AD_TARRIFF PACKAGES EXPLANATION
Admission Process (AD)	Courtesy and Responsiveness of the Admission Staff.	AD_STAFF ATTITUDE
In room experience (INR)	Cleanliness and Hygiene of the Room and Bath Room	INR_ROOM CLEANLINESS
In room experience (INR)	Peace and quiet in the room	INR_ROOM PEACE
In room experience (INR)	Working condition of all equipments	INR_ROOM EQUIPMENT
In room experience (INR)	Overall Ambience of the Room	INR_ROOM AMBIENCE
Food & Beverage (FNB)	Overall quality & Taste of food	FNB_FOOD QUALITY
Food & Beverage (FNB)	Timeliness of Service	FNB_FOOD DELIVERY TIME
Food & Beverage (FNB)	Regular diet counseling	FNB_DIETICIAN
Food & Beverage (FNB)	Courtesy and Responsiveness of the staff	FNB_STAFF ATTITUDE
Attendees experience (AE)	Care and Comfort for your Attendee	AE_ATTENDEE CARE
Attendees experience (AE)	Guidance and Information on Patient Health Status	AE_PATIENT STATUS INFO
Attendees experience (AE)	Food options for your Attendee	AE_ATTENDEE FOOD
Doctors Experience (DOC)	Adequate explanation given by the doctor regarding your treatment	DOC_TREATMENT EXPLANATION
Doctors Experience (DOC)	Courtsey and Compassion exhibited by the doctor.	DOC_ATTITUDE
Doctors Experience (DOC)	Regular process updates and visits	DOC_VISITS
Doctors Experience (DOC)	Effectiveness of Treatment.	DOC_TREATMENT EFFECTIVENESS
Nursing Services (NS)	Promptness in responding to call bell	NS_CALL BELL RESPONSE
Nursing Services (NS)	Courtesy & Compassion of the nursing staff	NS_NURSES ATTITUDE
Nursing Services (NS)	Anticipated your needs	NS_NURSE PROACTIVENESS
Nursing Services (NS)	Gave adequate time & explanation to your queries	NS_NURSE PATIENCE
Overall Staff (OVS)	Courteous and compassionate attitude and behaviour of the staff	OVS_OVERALL STAFF ATTITUDE
Overall Staff (OVS)	Prompt response to your concerns or complaints made	OVS_OVERALL STAFF PROMPTNESS
Overall Staff (OVS)	Helpfulness of security staff	OVS_SECURITY ATTITUDE
Discharge Process (DP)	Time taken for Discharge Process	DP_DISCHARGE TIME
Discharge Process (DP)	Communication and handling of queries	DP_DISCHARGE QUERIES
Discharge Process (DP)	Overall Discharge Process	DP_DISCHARGE PROCESS

Source: Customer Feedback Survey dataset (March–October 2014)

Exhibit 8

Likert scale for other questions in the survey



iPad 19:48 11%

Please give your valuable feedback

	Excellent 4	Good 3	Fair 2	Poor 1
*Did you find us when you needed us?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Care and Comfort for your attendee	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Guidance and information on patient health status	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Source: Digitized Survey Form, MHE

Exhibit 9

Department-wise missing data

Sections	Missing %
Admission Process (AD)	43.25%
Attendees experience (AE)	37.75%
Customer Engagement (CE)	14.87%
Discharge Process (DP)	44.34%
Doctors Experience (DOC)	54.78%
Emergency (EM)	76.78%
Food & Beverage (FNB)	37.08%
In-room Experience (INR)	35.20%
Nursing Services (NS)	40.68%
Overall Staff (OVS)	40.59%

Source: Customer Feedback Survey dataset (March–October 2014)