

Impact of Marketing on Clinical Departments of a Hospital-A Case Study of Kolkata, India

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ABSTRACT : The concept of a marketing orientation guides the thinking of many healthcare executives and researchers as found in previous studies. In this regard, the role of marketing on clinical departments of a super-speciality hospital in Kolkata is examined using data of 2013 and 2014. Hypotheses were tested based on impact of marketing on performance of clinical departments in these two years with the help of ANOVA.

KEY WORDS: Marketing orientation, ANOVA.

I Introduction

Marketing focuses on promoting exchanges with target markets for the purpose of achieving organizational objectives. The adoption of a marketing orientation is seen as a necessity to facilitate an organization's effectiveness. Effectiveness is further reflected in the degree to which an organization exhibits five major attributes of a marketing orientation:

1. Customer philosophy: Are customers' needs and wants used in shaping the organization's plans and operations?
2. Integrated marketing organization: Does the organization conduct marketing analysis, planning, implementation and control?
3. Marketing information: Does management receive the kind and quality of information needed to conduct effective marketing?
4. Strategic orientation: Does the organization implement strategies and plans for achieving its long-run objectives?
5. Operational efficiency: Are marketing activities carried out cost effectively?

Marketing as a management function which in its simplest term refers to the basic functions of management namely planning, organizing, leading and controlling (POLC). These four functions are necessary for the achievement of organizational goals. It is important that these activities should operate in harmony with one another since they are interrelated. The marketing department in a hospital handles volumes of critical data which has an important bearing on the decision making process.

II Review of Literature

The marketing function, new to hospitals in the mid-1980, was seen as a way to attract new customers, develop new services, and communicate "value" to potential buyers of its services. Adoption of a marketing orientation by hospitals was a necessary management strategy to achieve a competitive advantage in local markets.

Several studies addressed the marketing orientation of hospitals (Naidu, Kleimenhagen, and Pillari 1992; Naidu and Narayana 1991; Raju, Lonial, and Gupta 1995), and one study that considered the relationship of managed care penetration on a hospital's marketing orientation (Loubeau and Jantzen 1998). A marketing orientation and resources devoted to managed care were intended to increase the number of consumers and organizational buyers, profitability and customer satisfaction (Kotler 1994). Therefore, marketing and managed care likely would share similar processes and tasks such as market research and planning, communications, and sales, etc.

Hospital marketing orientation and the degree to which managed care processes were conducted within marketing departments in hospitals in the Commonwealth of Virginia in 1993 and 1999 were examined. During this time period, Virginia experienced increased managed care pressures as indicated by an increase in the

number of health maintenance organization enrolled from 464,479 in 1993 to 1,403,992 in 1998 (Area Resource File 2000). In addition, major employers in urban areas of the state have become more active in their purchasing of health benefits and are embracing managed care (Hurley and Thompson 1993; Thompson, Draper and Harley 1999), and the state Medicaid program has shifted more beneficiaries to managed care plans. The Virginia General Assembly enacted legislation in 1993 that required a patient-level database for inpatient admissions for all hospitals in the state, and in 1997 it required implementation of an efficient and productive rating system for all hospitals in the state. These environmental changes suggest that both marketing and managed care development would be adopted by many hospitals.

In the mid- 1980s the concept of a marketing orientation began to guide the thinking of many healthcare executives and researchers. Kotler and Clarke (1987) were the first researchers to clearly define the concept of marketing orientation in healthcare organizations. Their definition of marketing orientation states that the main task of the organization is to determine the needs and wants of target market and to satisfy them through the design, communication, pricing and delivery of appropriate and competitively viable products and services.

Three studies have shown the relationship of a marketing orientation in hospitals to measure hospital structure and performance. McDermott, Franzak and Little (1993) studied the existence of a marketing orientation in a national sample of 347 community acute care hospitals. Defining marketing orientation in terms of market intelligence activities, inter-functional coordination and organizational responsiveness activities, they found that the adoption of a marketing orientation by hospitals is positively associated with financial performance. Naidu, Kleimenhagen and Pillari (1993) studied the adoption of a product line management in 154 acute care hospitals. In this study, hospitals that use a product line management approach were found to have a high marketing score. Raju, Lonial and Gupta (1995) studied the relationship of hospital market orientation and performance. They found that different dimensions of market orientation are associated with specific measures of performance and that responsiveness to customers and to the competition are most closely linked with financial performance of hospitals. Bhuian and Abdul-Gader (1997) developed and tested a scale to measure hospital orientation by focusing on a range of marketing intelligence activities, which include many of the areas contained in Kotler and Clarke's (1987) concept of marketing orientation. Using confirmatory and factor analysis these researchers found their model to be helpful in explaining marketing orientation of 237 not-for-profit hospitals. Loubeau and Jantzen (1998), in their national cross-sectional study of 235 acute care hospitals, found that marketing orientation is much higher among those hospitals that have strong affiliations with other providers. In addition, these researchers found that higher managed care penetration rates are related to lower marketing orientation scores.

Source : "Hospital marketing orientation" by Kenneth R. White & Jon M. Thompson & Urvashi B. Patel

III Research Methodology

Two important data sets for a multi-specialty hospital are :

- Monthly performance of the different clinical departments in terms of number of in-patients
- Monthly performance of the different clinical departments in terms of revenue earned

For the purpose of the study, the data sets of two previous calendar years (2013 & 2014) of a super-specialty hospital of Kolkata, Genesis Hospital were taken due to convenience and analyzed. The departments under consideration were :

- (1) General Surgery (GS)
- (2) Urology (Uro)
- (3) Gynaecology & Obstetrics (Gynae)
- (4) Medicine (Med)
- (5) Ear, Nose & Throat (ENT)
- (6) Paediatrics (Ped)
- (7) Centre for pain and rehabilitation medicine (CPRM)
- (8) Orthopaedics (Ortho)
- (9) Plastic Surgery (PS)
- (10) Oncology (Onco)

Two-way Analysis of Variance (ANOVA) was performed to test the following hypotheses at 5% level of significance:

- (1) *In 2013, there is no significant difference between departments in month-wise analysis*
- (2) *In 2014, there is no significant difference between departments in month-wise analysis*
- (3) *There is no significant difference between departments in yearly analysis*

IV Analysis and interpretation of Data

(a) *Study of year 2013*

Ho: There is no significant difference between departments in month-wise analysis

H1: There exists significant difference between departments in month-wise analysis

TABLE 1

Table showing no of inpatients in various departments on monthly basis in year 2013

Departments	Months												Total
	Jan	Feb	Mar	Apl	May	June	July	Aug	Sept	Oct	Nov	Dec	
	(x1)	(x2)	(x3)	(x4)	(x5)	(x6)	(x7)	(x8)	(x9)	(x10)	(x11)	(x12)	
General Surgery	195	120	123	366	377	308	130	192	219	300	237	234	2801
Urology	19	23	14	16	19	31	12	19	16	11	8	26	214
Gynaecology	33	25	39	54	28	25	25	36	36	25	19	46	391
Medicine	28	24	20	20	28	96	22	22	26	35	46	41	408
ENT	1	2	1	2	3	2	2	6	3	1	2	3	28
Paediatrics	32	32	31	40	35	36	12	61	26	31	17	46	399
CPRM	2	3	1	5	1	2	1	9	5	1	1	1	32
Orthopaedics	3	10	7	11	7	10	4	11	16	10	8	8	105
Plastic Surgery	28	22	16	17	38	27	18	32	16	18	23	22	277
Oncology	12	17	12	24	30	14	9	12	15	17	18	19	199
Total	353	278	264	555	566	551	235	400	378	449	379	446	4854

Result obtained in two-way ANOVA :

Source of Variation	Sum of squares	Degrees of freedom (d.f.)	Mean Square	Variance ratio
Between columns	227662	11	20697	11.43
Between rows	321896	9	35766	19.76
Error	179135	99	1809	
Total	728693	119		

Tabulated value of F at 5% level of significance and for degrees of freedom 9 between rows and 11 between columns is 2.8962. As observed values of F for both cases (between columns as well as between rows) are greater than this tabulated value of F, we have to reject Null Hypothesis and accept Alternative Hypothesis. Thus we can conclude that in year 2013 performance of departments is significantly different in month-wise analysis.

(b) Study of year 2014

*Ho: There is no significant difference between departments in month-wise analysis
H1: There exists significant difference between departments in month-wise analysis*

TABLE 2													
Table showing no of inpatients in various departments on monthly basis in year 2014													
Departments	Months												Total
	Jan (x1)	Feb (x2)	Mar (x3)	Apl (x4)	May (x5)	June (x6)	July (x7)	Aug (x8)	Sept (x9)	Oct (x10)	Nov (x11)	Dec (x12)	
General Surgery	235	301	426	157	163	260	160	127	244	238	264	233	2808
Urology	16	28	29	92	119	50	41	107	116	44	59	36	737
Gynaecology	33	41	42	66	16	48	46	33	56	39	30	48	498
Medicine	22	28	53	35	20	22	12	14	18	13	10	23	270
ENT	3	2	4	4	1	9	3	11	2	4	1	5	49
Paediatrics	30	56	71	66	119	49	73	43	35	40	56	41	679
CPRM	2	1	4	3	2	1	5	4	2	1	2	3	30
Orthopaedics	10	17	8	7	31	18	15	12	9	16	19	15	177
Plastic Surgery	3	10	2	8	2	5	6	3	3	2	4	3	51
Oncology	17	21	14	6	11	29	3	19	13	12	10	15	170
Total	371	505	653	444	484	491	364	373	498	409	455	422	5469

Result obtained in two-way ANOVA :

Source of Variation	Sum of squares	Degrees of freedom (d.f.)	Mean Square	Variance ratio
Between columns	327462	11	29769	23.04
Between rows	411896	9	45766	35.42
Error	127936	99	1292	
Total	867294	119		

Tabulated value of F at 5% level of significance and for degrees of freedom 9 between rows and 11 between columns is 2.8962. As observed values of F for both cases (between columns as well as between rows) are greater than this tabulated value of F, we have to reject Null Hypothesis and accept Alternative Hypothesis. Thus we can conclude that in year 2014 performance of departments is significantly different in month-wise analysis.

(c) Study of 2013 and 2014 taken together

*Ho: There is no significant difference between departments in yearly analysis
H1: There exists significant difference between departments in yearly analysis*

TABLE 3

Table showing total no of inpatients in various departments in 2013 and 2014

Years	Departments										Total
	General Surgery	Urology	Gynae	Medicine	ENT	Paediatrics	CPRM	Ortho	Plastic Surgery	Onco	
	(x1)	(x2)	(x3)	(x4)	(x5)	(x6)	(x7)	(x8)	(x9)	(x10)	
2013	2801	214	391	408	28	399	32	105	277	199	4854
2014	2808	737	497	270	49	679	40	177	51	170	5478
Total	5609	951	888	678	77	1078	72	282	328	369	10332

Result obtained in two-way ANOVA :

Source of Variation	Sum of squares	Degrees of freedom (d.f.)	Mean Square	Variance ratio
Between columns	41277890	11	3752535	3.75
Between rows	63356722	1	63356722	63.35
Error	10999999	11	999999	
Total	867294	119		

Tabulated value of F at 5% level of significance and for degrees of freedom 1 between rows and 11 between columns is 4.8443. As observed values of F for between rows (ie. years) is greater than this tabulated value of F, we have to reject Null Hypothesis and accept Alternative Hypothesis. So performance of departments significantly different in these years 2013 and 2014.

On the other hand observed values of F for between columns (ie. departments) is lesser than this tabulated value of F, we have to accept Null Hypothesis and reject Alternative Hypothesis. So marketing activities have similar effect on clinical performance of departments.

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