

## Original Research Article

# Do surgical patients of remote areas really need to overburden urban medical colleges: a practical survey analysis

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## ABSTRACT

**Background:** Public health care delivery is inadequate and as a result the demand supply gap is large, this is specially so in rural India. Even with so many hospitals in the peripheries still there is overcrowding in the urban Medical Colleges. Overcrowding is when hospitals operate beyond a safe level of 85% bed occupancy. This leads to delay in treatment and subsequent medical complications. Furthermore, quality of the treatment is jeopardised as its effects physician's effectiveness, causing frustration among medical staff and may even contribute to violence. The objective was to identify the elective/non-emergency operations that could have been done in rural hospitals but were done in a tertiary Medical College and to find out the cause for avoiding the local government hospitals nearer to their residence. This study suggested some remedies to correct this disparity.

**Methods:** This was an observational and descriptive study where patient's type of operation, distance travelled and cause for coming to an urban Medical College was noted.

**Results:** Majority of the patients did not have any idea as to why they chose this hospital, other reasons are lack of infrastructure in their rural hospital, bad reputation, lack of cleanliness, malpractice by the hospital staff etc.

**Conclusions:** Health care facilities in different locations should be based on utilization rates and also proper and efficient management of these established facilities should be done.

**Keywords:** Rural hospitals, Surgical patients, Urban medical colleges

## INTRODUCTION

Public health care delivery is inadequate and as a result the demand supply gap is large, this is specially so in rural India. Nowadays, this gap is increasingly being filled by the different private health care institutions.<sup>1,2</sup>

As per National Rural Health Mission Report 700 million people live in 636,000 Indian villages. Majority of people die due to preventable and curable diseases like

diarrhoea, measles and typhoid fever. 66% of rural Indians do not have the access to the critical medicines, 31% of the population travels more than 30 kilometers to seek healthcare in rural India.<sup>3</sup>

Urban Medical College and Hospitals are overburdened with this tremendous patient load. Overburdened or overcrowding can be said when hospitals operate beyond a safe level of 85% bed occupancy and patients are admitted unplanned or rather patient admission is more

than there are ward beds available. Patients are coming for their health ailments not only from nearby localities but also from remote areas, leading to delay in treatment and subsequent medical complications. Furthermore, to cater to such a huge number of patients at a medical college, quality of the treatment is jeopardized and there is unnecessary delay in treatment and in performing elective surgeries that could have been done in hospitals nearer to their residence. The health care delivery services of India consist of primary care level provided by sub-centres and primary health centers, secondary care level provided by community health centres, sub-division hospitals and district hospitals and tertiary care level provided by regional and central level institutes like medical college and hospitals.<sup>4</sup>

Even with so many hospitals at the peripheries still there is overcrowding in the urban medical colleges. In this study, author aimed to identify the operations that could have been done in rural hospitals but were done in this Medical College, to find out the cause for avoiding the local government hospitals nearer to their residence and the distance an ailing person has travelled to reach this urban medical college. This study suggested some remedies to correct this disparity. The elective operations taken into consideration in this study e.g. Hydrocele, herniorrhaphy, appendectomy, gynecological operations like dilatation and evacuation, dilatation and curettage, ligation etc. could have been performed in any rural hospitals with minimum operation theatre facilities.

Singh S et al, points out that though existing infrastructural setup for providing health care in rural India is on a right track, yet the qualitative and quantitative availability of primary health care facilities is far less than the defined norms by the World Health Organization.<sup>5</sup>

According to Kumar R, nearly 86% of all the medical visit in India are made by ruralites with majority still travelling more than 100km to avail health care facility of which 70-80% is born out of pocket landing them in poverty.<sup>6</sup>

Saha UC et al, found that utilization of health services has shown to be residence and educational level dependent with 70% of illiterate availing no antenatal care (ANC) when compared with 15% of literate with rural women (43%) less likely to receive the ANC services when compared with urban women (74%).<sup>7</sup>

In *Journal of Health Management*, Dalal AK writes that the quality of health care services provided can be assessed by the following dimensions: adequately equipped and easily accessible public health facility, appropriate and timely clinical care and patient satisfaction with health care received and the outcome of treatment. Ultimately, the real test of the quality of health care services is how they affect health outcomes, especially of the poor.<sup>2</sup> According to Madhiwalla N, bad

working conditions, overcrowding and inadequate facilities are responsible for the increased friction between patients and providers.<sup>8</sup>

Chillimuntha AK et al, has stated that underutilization of existing rural hospitals and health care facilities can be addressed by a market-centre approach and more effective government intervention for horizontal and vertical hospital integration. They have also said that tele-healthcare, mobile health units and community-based health insurance are proven helpful in rural areas. Autonomy enjoyed by women and exposure to media also has a significant impact on maternal health care utilization in rural areas.<sup>9</sup>

The study aimed to identify the operations that could have been done in rural hospitals but were performed in urban Medical College, to find out the cause of underutilization of the rural health care system, distance a patient has travelled to reach the urban medical college and to find out the distance the person had to travel from their residence to nearby Government health care establishment.

## METHODS

After taking ethical committee clearance the study was done in two months (60 days) 01 June 2017 to 30 July 2017.

Elective routine operations that are done in the different Operation Theatres (OT) of an urban Medical College, for example, General Surgery operation theatre under the Department of General Surgery, ENT and Ophthalmology operations in the Oto-Rhino-Laryngology and Ophthalmology OT respectively and Gynaecology and Obstetrics operations done in Gynaecology OT were recorded for the study. Specialized operations and emergency operations were not taken into consideration.

This was an observational, nonrandomized, non-blinded, non-interventional and descriptive study. The patients of both sex of all age groups between 5 and 70 years, operations considered as elective (planned) operations and surgical procedures considered as elective by the operating surgeon were included.

The patients with age below 5 years and geriatric population, any patients with proper referral letter from specialist doctors of rural hospital, patients with comorbid medical conditions and who require post-surgical life support, patients of impending post-surgical complications, patients undergoing emergency surgical procedure, patients undergoing high risk surgeries, patient not consenting to the study or of unsound mind were excluded.

The present study was an introspection of understanding between hospital authorities, hospital manpower and infrastructure for efficient, safe, proper and rational

utilization of government health care-giver in rural and urban hospitals in future. The patients and their family members were convinced that not all medical diseases need to be attended by the Medical College Hospitals. There are amenities in the rural based tertiary care hospitals where operation procedures like hydrocele, hernia, abscess, cataract surgery, myringoplasty, tympanoplasty, uncomplicated obstetric procedures and other gynecological operations can be managed safely.

Points of interest to be noted that the outcomes are emphasized upon were number of patients coming to an urban Medical college from rural India for simple elective surgeries such as are hydrocele, hernia, appendectomy, cysts removal, abscess drainage, dilation and evacuation/curettage, ligation, cataract surgery etc. were noted. Proportion of the total number of surgeries that could have been performed safely at different rural hospitals. The nearest district, sub-divisional or super Speciality hospitals as per patient’s residential address in rural Bengal where such operative facilities are available was obtained from the West Bengal health map.

The cause for such underutilization of the rural healthcare system and over burdening of the different tertiary care referral hospitals were taken into account. Family member and patient to be convinced to go to the nearest health care facility next time the need arises. To make the urban and rural health care personnel aware about the problems of this overcrowding of urban Medical Colleges.

Evaluation of patient’s records on the type of surgical procedure and evaluation of patient’s records to find their

residential address. A pre-designed and structured schedule regarding cause of choosing this hospital for treatment and categorization of the surgical operations were done. Number of patients coming from Greater Kolkata and the number patients coming from far off rural areas were compared.

This was a pilot project and the pilot determined that out of 10 operations done in this Medical College, 4 can be done in rural settings.

**By applying the formula**

$$z^2p(1-p)/d^2$$

- Where, z= standard normal variant (p<0.05) it is 1.96,
- P= expected proportion of population= 40%,
- D= absolute error (Determined by the researcher to be 3.65%).

Hence putting the above values, the sample size was determined to be 414.

Suitable statistical methods were applied for the interpretation of the data. The data was expressed in the form of bar diagrams, pie charts etc.

**RESULTS**

The data representation was being made taking into considerations of the questions in the schedule. 426 patients were assessed eligible of which 10 refused to answer the questions. The total study population was 416.

**Table 1: The Demographic distribution of study population and distance of patient’s residence from the urban medical college-original.**

N=416	Surgical-256	Gynaecology and Obstetrics--132	Otorhinolaryngology -14	Eye-14
Median age in years	52	36	37	62
Sex ratio M:F	24:40	All female	2:1	5:9
Residence within 20km from hospital	129	60	8	15
Residence within 20 -40km from hospital	20	16	4	10
Residence within 40 60km from hospital	24	20	0	3
Residence more than 60km from hospital	68	28	8	3

The study included both males and females between 5 and 70 years of age. It was observed that 25% (104) of the total cohort was male and 75% (312) was female. Median age of male population was 47 and 38 for female population.

The distance of the patient’s residence from the urban Medical College has a profound impact on the time spent on travelling to the hospital and delay in receiving required treatment and thus further deteriorating the condition of the patient.

Of the total studied patient population 51% (212) was coming to this medical college within a radius of 20 kilometer surrounding, 12% (50) came from a distance between 20-40km, 11% (47) came from a distance between 40-60km, 26% (107) came from a distance greater than 60km.

Among those who reside within 20km distance, patients coming for surgical operations was 60.84% (129), for gynecological operations 28.30% (60), for ENT operations 3.77% (8) and for ophthalmological problem 7.07% (15).

Between 20 and 40km distance, author found 40% (20) were surgical patients 32% (16) were gynae-obstetric patients 8% (4) were ENT patients and 20% (10) were ophthalmology department patients.

Among the patients living at a distance between 40-60km surgical patients were 51.06% (24), gynecological patients were 42.55% (20), ENT patients were 0% (0), ophthalmology patients were 6.38% (3). Those who came from a distance greater than 60km distance, patients coming for surgical operations was 63.55% (68), for gynecological operations 26.16% (28), for ENT surgery purpose 7.47% (8) and for ophthalmological problem 2.80% (3).

**Distance (in km) of nearest Government Hospital from patient's residence**

This distance was recorded to showed that the patient could have received treatment at a hospital nearer to their residence which would have saved their time and money. Had they gone to these hospitals, the burden on urban Medical Colleges would have lessened.

**Table 2: Distance (in km) of nearest Government Hospital from patient's residence: original.**

Distance	≤10Km	10-20km	20-30km	>30km
Percentage	67	16	10	7

It was observed that majority of the patients had government hospital within 10km of their residence. 67% (279) among rest of the patients 16% of the patients had hospital within 10km-20km (67) 10% of the patients had hospital within 20km-30km (41) only 7% of the patients had hospital at a distance more than 30km (29).

**Table 3: Number of days patient had to wait before admission: original.**

Days	≤15	16-30	31-45	46-60	>60
Number	146	62	21	33	154
Percentage	35.09	14.90	5.04	7.93	37.01

The above data shows that this Table was done to show the unnecessary delay in treatment. 35.09% (146) of the

patients had to wait for less than 15 days, 14.90% (62) of patients had to wait for 16-30 days, 5.04% (21) of the patients had to wait for 31-45 days, 7.93% (33) of the patients had to wait for 46-60 days, 37.01% (154) of the patients had to wait for more than 60 days.

**Table 4: Total duration of stay in the hospital-original.**

Days	≤10	11-20	21-30	>30
Number	200	196	20	0
Percentage	48.07	47.11	4.8	0

**Table 5: Cause for not attending local hospital: original.**

Causes	1	2	3	4	5	6	7	8	9	10
No. of patients choosing the cause.	20	8	96	4	8	96	8	16	28	104

From the above data it was inferred that the duration of stay also increases because of increased morbidity as the disease has progressed. 48.07% (200) of the patients had to stay for less than 10 days, 47.11% (196) of the patients had to stay for 11-20 days, 4.8% (20) of the patients had to stay for 21-30 days, none stayed for more than 30 days. Clearing this huge number of patients in less than 30 days takes a toll on the physical as well as mental health of the treating doctors.

Cause of choosing an urban Medical College: It was essential to know why the patient or the party chose an urban medical college over a nearby government health care facility which could offer the same treatment. From the calculations it can be inferred that 75% (312) of the patients came on self-recommendations, 11% (46) were recommended by their relatives, 8% (33) were recommended by their neighbors, 1% (4) were recommended by their Village Panchayat, 5% (21) were recommended by doctors/ private practitioners/ quacks.

**Options for not attending local hospital**

Bad reputation-1, lack of cleanliness-2, lack of infrastructure-3, difficult transportation route-4, malpractice by the hospital staffs-5, absence or lack of efficient-health staff/surgeon/anaesthetist-6, ill behaviour of the hosp. staff-7, unnecessary delaying of treatment-8, past experience, not good with this hospital-9, don't know-10.

From the given data author inferred that, many patients chose more than one option for not attending nearby rural hospitals. Majority of the patients did not have any idea as to why they chose this Medical College or they lived near the institution. Many patients chose urban medical college for lack of infrastructure or absence or lack of efficient health staff in their rural hospital. Some chose

urban medical college because of bad reputation of their nearby rural hospital. Only a small number of patients chose this medical college because of reasons such as lack of cleanliness, difficult transportation route, malpractice by the hospital staffs, ill behaviour of the hospital staff, unnecessary delaying of treatment or poor past experience with the nearby rural hospital.

## DISCUSSION

Around the world healthcare system is ever struggling to meet the increasing demands. This problem has been addressed by many national and international authors.<sup>10</sup> There has always been a huge disparity in the use of healthcare services between rural and urban areas, which can be empirically attributed to several factors. The objective was to determine the relative importance of the various predisposing factors on underutilization of rural health services and overburdening of the urban health services which results in the deprivation of the urban poor population.<sup>11</sup> Though the government has launched many projects and surveys like National Rural Health Mission (NRHM), National Family Health Survey (NHFS) etc. but inappropriate planning, management and utilization of such services play a huge role in this disparity.<sup>12,13</sup>

In addition, other factors like population growth, increasing demand for health services against limited resources, improper allocation of the limited resources, inefficient planning of government health care programmes and health services, poor quality of rural government health care services and inadequacy of the supporting infrastructural facilities like water, electricity and good roads also play vital role in this underutilization of rural health care services.<sup>14</sup>

In this study, most patients were in the age group of 30-50 years. Though majority of patients coming to the urban medical college were living within 20km but there were many who were living at a distance of more than 60km. Cost of travelling from their homes to the hospitals drains them of their money and health.<sup>6</sup> Most of the patients come from rural Bengal, they are not familiar with the urban society so a simple task of reaching the hospital and going to the various departments for the different investigations puzzle them. This results in delay of starting the treatment. On the other hand, had they gone to hospitals nearer their residence, treatment could have been started on time and the load on this hospital could have been reduced. This study found out that majority of the patients had government hospital within 10km of their residence while very few i.e. only 7% of the patients had hospital at a distance more than 30km. Many were not even aware of the existing hospital. It has been studied that awareness of utilization of health services depends upon the patient's educational level.<sup>7</sup>

This result in the urban hospitals being overburdened, and thus even after reaching the hospital they have a long

waiting period for admission and operation, majority have to wait for over two months. As the waiting period is long so chances of complication become high, on analyzing it was seen that total duration of hospital stay increased, in many cases it was more than 10 days.<sup>2</sup>

While trying to elicit the cause for attending an urban medical college it was found that the majority of patients came on relatives' and self-recommendations. Some were also recommended by general practitioners and quacks. It was surprising to find out that many were not aware of the existence of the nearby rural hospital. Though the list for not choosing the nearby rural hospital is exhaustive but the main complaints were for lack of infrastructure, absence or lack of efficient health staff. Only a small number of patients chose this medical college over their rural hospitals because of reasons such as lack of cleanliness, difficult transportation route, malpractice by the hospital staffs, ill behaviour of the hospital staff, unnecessary delaying of treatment or poor past experience with the nearby rural hospital.<sup>15,16</sup>

Overburdening the urban hospitals will result in compromising the care of the patients as it will affect physician's effectiveness, causing frustration among medical staff and may even contribute to violence in the wards.<sup>17,18</sup> Patient's coming from far off areas bring a lot of relatives "as patient's party" along with them, who stay in the hospital premises, which compromises the cleanliness of the hospital.

Government of West Bengal is now trying to improve the health care delivery system on a priority basis, by setting up government hospitals at different levels, in order to minimize the expenditure of common people related to medical care.<sup>19</sup> Unless the problem is solved in the near future, the general public will cease to rely on the emergency departments for quality and timely treatment therefore planning the establishment of different categories of health care facilities in different locations should be based on utilization rates and also proper and efficient management of these established facilities should be done.<sup>20,21</sup>

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