

Small Applied  
Research Paper 5

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# Characteristics and Structure of the Private Hospital Sector in Urban India: A Study of Madras City

March 1999

Prepared by:

V. R. Muraleedharan, Ph.D.  
Indian Institute of Technology, Madras



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In collaboration with:

Development Associates, Inc. ■ Harvard School of Public Health ■  
Howard University International Affairs Center ■ University Research Co., LLC



Funded by:  
U.S. Agency for International Development

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Partnerships  
for Health  
Reform

## Mission

*The Partnerships for Health Reform (PHR) Project seeks to improve people's health in low- and middle-income countries by supporting health sector reforms that ensure equitable access to efficient, sustainable, quality health care services. In partnership with local stakeholders, PHR promotes an integrated approach to health reform and builds capacity in the following key areas:*

- ▲ *better informed and more participatory policy processes in health sector reform;*
- ▲ *more equitable and sustainable health financing systems;*
- ▲ *improved incentives within health systems to encourage agents to use and deliver efficient and quality health services; and*
- ▲ *enhanced organization and management of health care systems and institutions to support specific health sector reforms.*

*PHR advances knowledge and methodologies to develop, implement, and monitor health reforms and their impact, and promotes the exchange of information on critical health reform issues.*

**March 1999**

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# Abstract

This paper examines India's private hospital sector, focusing on urban hospitals. Data collected for the study from a sample of hospitals in Madras City was used to analyze the size, infrastructure, and distribution of private hospitals, the range and pricing of services offered, and the various payment schemes for private hospitals, diagnostic centers, and physicians. The study also identifies strategies to improve the performance and accessibility of the private hospital market. Policy issues discussed include the process of deregulation, the interaction between the public and private health sectors and the question of over-provision of services. The paper concludes that there is a need for improved data on the growth and distribution of private sector health professionals and for policies beneficial to both public and private health sectors. Creation of a separate state agency concerned with the development of the private health sector is also recommended.



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# Acronyms

<b>APHD</b>	Average Physicians Hours per Day
<b>ATDB</b>	Ayals Time per Day per Bed
<b>CBA</b>	Consultant by Appointment
<b>CWC</b>	Community Welfare Center
<b>DHNSI</b>	Directory of Hospitals and Nursing Homes in South India
<b>DC</b>	Duty Doctors
<b>FFS</b>	Fixed Fee Schedule
<b>FLFS</b>	Flexible Fee Schedule
<b>FSS</b>	Fees Sharing System
<b>HO</b>	Health Officer
<b>ICU</b>	Intensive Care Unit
<b>NTDB</b>	Nurses Time per Day per Bed
<b>NTW</b>	Nursing Time in a Week
<b>NTD</b>	Nursing Time per Day
<b>OB&amp;GYN</b>	Obstetrics and Gynecology
<b>OT</b>	Operation Theatre
<b>TPHD</b>	Total Physicians Hours per Day
<b>TPHDB</b>	Total Physicians Hours per Day per Bed
<b>VC</b>	Visiting Doctor



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# Foreword

Part of the mission of the Partnerships for Health Reform Project (PHR) is to advance “knowledge and methodologies to develop, implement, and monitor health reforms and their impact.” This goal is addressed not only through PHR’s technical assistance work but also through its Applied Research program, designed to complement and support technical assistance activities. The main objective of the Applied Research program is to prepare and implement an agenda of research that will advance the knowledge about health sector reform at the global and individual country levels.

An important component of PHR’s applied research is the Small Applied Research (SAR) program. SAR grants are awarded, on a competitive basis, to developing-country research institutions, individuals, and non-profit organizations to study policy-relevant issues in the realm of health sector reform. The SAR program has twin objectives: to provide data and analyses relevant to policy concerns in the researcher’s own country, and to help strengthen the health policy research capacity of developing country organizations.

A total of 16 small research grants have been awarded to researchers throughout the developing world. Topics studied include health financing strategies, the role of the private sector in health care delivery, and the efficiency of public health facilities.

SAR grant recipients are encouraged to disseminate the findings of their work locally. In addition, final reports of the SAR research studies are available from the PHR Resource Center and via the PHR website. A summary of the findings of each study are also disseminated through the PHR “in brief” series.

Sara Bennett, Ph.D.  
Director, Applied Research Program  
Partnerships for Health Reform



## Small Applied Research Grants

Dr. Joseph K. Konde-Lule (Institute of Public Health, Makerere University). "User Fees in Government Health Units in Uganda: Implementation, Impact and Scope."

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Easha Ramachandran (Institute of Policy Studies, Health Policy Programme). "Operating Efficiency in Public Sector Health Facilities in Sri Lanka: Measurement and Institutional Determinants of Performance."

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Dr. Arlette Beltran Barco (Universidad Del Pacifico). "Determinants of Women's Health Services Usage and Its Importance in Policy Design: The Peruvian Case."

Frederick Mwesigye (Makerere University, Makerere Institute of Social Research). "Priority Service Provision Under Decentralization: A Case Study of Maternal and Child Health Care in Uganda."

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# Executive Summary

The private hospital sector in India caters to a large segment of the population, yet it has received very little attention from scholars, policymakers, and others. As a result, very little is known about how the private hospital market is functioning and what could be done to improve its performance. Since mid-1990, the government of India has been trying to persuade the various state governments to introduce appropriate regulatory mechanisms for private hospital sector. This includes designing physical standards for various categories of hospitals and evolving an appropriate accreditation system, besides establishing an appropriate redressal system for patients. But hardly any progress has been made by state governments in this respect. A major reason for their failure to accomplish this goal lies in the lack of any understanding of how the private hospital market functions, and what would work under the prevailing conditions.

This study attempts to fill this gap in the knowledge of the private hospital market in urban India in particular. In view of this, the study attempts to give as detailed a description and analysis of the structure and characteristics of the private hospital market as possible by collecting original data from a sample of hospitals in Madras city. The overarching objective of this study is to understand the size, structure, and characteristics of the private hospital market in Madras city. More specifically, the study seeks to:

- ▲ Analyze the size and geographical distribution of private hospitals in Madras city;
- ▲ Study the extent of infrastructural facilities provided in these hospitals;
- ▲ Study the range of specialty services offered, their organizational features, personnel, workload, and utilization and pricing of selected services;
- ▲ Assess the various payment/incentive schemes prevalent in various private hospitals; and
- ▲ Identify strategies to improve the performance and accessibility of the private hospital market.

The city of Madras (recently renamed “Chennai”) has close to 400 private hospitals, for a population of nearly 8 million people including the suburban areas. Most private hospitals are owned by individual physicians. Only six are corporate public limited hospitals, i.e., are listed in the stock markets. The average size of these private hospitals, which are located in various parts of the city, is around 30 beds, and many have fewer than 10 beds. The private/public ratio of beds in the city is about 48 percent/52 percent.

The private hospital sector in India has grown passively over the years, without any kind of state policy directing its growth and development. As a result, the private hospitals have had no incentive to follow norms either with regard to physical infrastructure (space per bed; provision of certain utilities such as drinking water, drainage facilities, elevators, and back-up power) and staffing pattern. For example, there are no common norms for setting up an intensive care unit (ICU), and as a result there is vast variation in provision of ICU facilities across private hospitals. The study shows that on a number of accounts there is prima facie evidence for policymakers to worry about the quality and quantum of physical infrastructure available for good patient care in private hospitals.



In Tamil Nadu, as in many other states in India, it is common for government doctors to work as consultants in private hospitals. This is more common in large urban areas. Also, there is a complex network of arrangements between these physicians and private hospitals, as well as with local diagnostic centers. These diagnostic centers may be independent (stand-alone), or they may be attached to larger private hospitals. It would be worthwhile to conduct a separate study on the nature of relationship between them as they are likely to influence their financial performance for mutual benefits since most payments are made out of pocket on a fee-for-services basis.

While it is difficult to provide an accurate analysis of the competition and market strategies among private hospitals in Madras city, it is not altogether impossible to say anything in this respect. Our study indicates a strong presence of non-price competition among private hospitals.

Several policy issues arise out of this study. One of them is the issue of regulation. Who should regulate the private hospitals, what should be regulated and to what extent, and by what process should governing be carried out? These three questions are constantly raised by the private hospitals whenever the issue of regulation and standards are discussed with them. The study provides some basic data—showing the prevailing practice on a number of physical facilities and staffing patterns in private hospitals—for policymakers to make a beginning.

Given that public sector physicians are in demand in many private hospitals, it is necessary to think of policies that would be beneficial to both private and public health sectors. One possible policy could be to identify specialties in high demand from private sector and develop specific measures to moderate their practice. Additional components could include: (1) public sector physicians may be asked to share their fees with the government since they are allowed to practice in private hospitals and (2) limit the number of public sector physicians allowed to practice in private hospitals based on some mutually agreed criteria. Another possible but less realistic option, to ban the private practice of public sector physicians during hours they are responsible to public facilities, is being and will continue to be met with intense resistance from the medical community and perhaps other influential groups close to policymakers. This latter policy option, if it could be enforced, would achieve one result: The government doctors would not practice in private premises during office hours. But whether that would ensure substantial improvement in the provision of care within government premises during those hours is not automatic.

The study shows that the current payment system has an incentive for physicians to over-provide care depending upon patients' ability to pay. The relevant policy issue would be to address how far such over-provision could be contained. The study argues that, while it is difficult to implement such policies, over-provision cannot be allowed to persist and therefore policymakers must give adequate legal protection to the indigent and medically needy patients who could otherwise be victims of over- or under-treatment.

Several policy options can be put forward to promote a healthy growth of the private hospital market in urban India, but they must be acceptable to those who represent it. Much of what can be done depends on how providers perceive the current market. Most physicians and hospitals express concern over the "intense competition" in the market, and how as a result they are not doing well financially. Although it is difficult to prove such impressions with "hard data" one way or another, they cannot be brushed aside as mere concoctions to fool the analysts or policymakers. It is difficult to regulate and moderate the private hospital sector given its past reckless unbridled growth in the past, but the government can make some positive initiatives. The first step in that direction should be in building their own credibility. As a part of this exercise, the state could perhaps create a separate body—which may be called the "State Private Health Sector Development Agency"—concerned with



developmental needs of the private hospitals in the state. The primary aim of policies should be to develop a healthy relationship between the private and public health care system in the state.

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# 1. Introduction

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## 1.1 Rationale and Objectives

The private hospital sector in India has grown without any kind of conscious state policy with regard to hospital size or location, personnel employed, capital invested, physical standards, service charges, nature of contracts with purchasers, information management, etc. Indeed, this holds good for all kinds of medical care systems in private sector. It is also true that until recently the state had not shown much interest in analyzing the nature of the private hospital sector or in designing an appropriate policy for sector growth and development. Since the mid-1990s, the government of India have been trying to persuade the various state governments to introduce appropriate regulatory mechanisms for the sector. This includes designing physical standards for various categories of hospitals, and evolving an appropriate accreditation system, besides establishing appropriate redressal system for patients.

While some initiatives have been made by various state governments and non-governmental organizations in different parts of India (including the state of Tamil Nadu) to address the above mentioned regulatory issues, as yet the country does not have any state or national level policy document that has been adopted, or is being considered in consultation with various stakeholders in private health sector.

This report argues that it is not possible to address adequately these substantive issues and come out with any acceptable policy toward private hospitals, without an empirical understanding of their overall behavior, including their structure, prevailing practices, and standards. As of now, there is literally no analysis of the private hospital market in Tamil Nadu; this is also largely true of most other parts of India.<sup>1</sup>

This study attempts to fill this gap in the knowledge of the private hospital market, in urban India in particular. In view of this, it gives as detailed a description and analysis of the structure and characteristics of the private hospital market as possible by collecting original data from a sample of hospitals in Madras city. Its overarching objective is to understand the size, structure, and characteristics of the private hospital market in Madras city. More specifically, the study:

- ▲ Analyzes the size and geographical distribution of private hospitals in Madras city;
- ▲ Studies the extent of infrastructural facilities provided in these hospitals;
- ▲ Studies the range of specialty services offered, their organizational features, personnel employed, workload, and utilization and pricing of selected services;
- ▲ Assesses the various payment/incentive schemes prevalent in various private hospitals; and
- ▲ Identifies strategies to improve the performance and accessibility of the private hospital market.

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<sup>1</sup> A recent study by Sunil Nandraj and Ravi Duggal on physical standards in private hospitals in Satara district in Maharashtra is very closely related to the nature of issues with which we are concerned in this study (Nandraj and Duggal, 1996).

The original objectives of the proposed study were more ambitious than outlined above. Both the pilot study and the actual survey showed that it is very difficult to collect information on a number of hospital variables including the volume of patients treated, utilization of services, etc. (for further discussion on this, see Chapter 2). However, even with the limited amount of data, the study highlights a number of policy concerns that need further inquiry in order to initiate reforms of (regulatory) processes that will contribute to the overall performance and accessibility of the private hospital market.

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## **1.2 Organization of the Report**

Chapter 2 describes the methodology of the study and highlights many practical constraints faced while carrying out the survey. Chapter 3 summarizes the results of the survey with respect to each of the study objectives. Chapter 4 highlights a number of policy issues that emerge from these results. Some of these results should be viewed as pointers to an informed consideration of the reform issues pertaining to private hospital sector. Other results should be viewed as indicative of possible policy measures to improve the performance of and access to the private hospital sector in Madras city in particular, and in urban India in general.



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## 2. Methodology

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### 2.1 Area

The study is confined to the city of Madras,<sup>2</sup> the capital of the state of Tamil Nadu, which is one of the southern states of India. There are three reasons why a large urban area is chosen for this study: (1) A large proportion (more than 65 percent) of private hospitals and beds are concentrated in urban areas (Bhatt, 1993). Therefore, it is hoped that studying private hospitals in Madras city will reflect many of the conditions prevailing in the rest of the urban hospital market. (2) Since the study team had not previously conducted a survey-based study of hospitals, it confined this study to a geographic area with which it was familiar. (3) The large number of private hospitals in the city provided a fairly large sample size from one administrative area. If some hospitals refused to respond (as they did), the team could compensate by including others willing to respond (as it did).

The Madras metropolitan area is divided into 10 administrative zones.<sup>3</sup> The zones are further divided into divisions, totaling 155.<sup>4</sup> At the time of deciding the sample size and selection of hospitals (in December 1997/ January 1998), the study obtained a list of private and public hospitals in the city maintained by the Health Officer (HO) of the Corporation of Madras.<sup>5</sup> Although the HO admitted that the list was not exhaustive, it was useful for the study's purpose because it provided (1) the zonal distribution, (2) the bed size and (3) the addresses of the hospitals.<sup>6</sup> The list contains only those hospitals that provide inpatient care, whereas the study covers private hospitals that provide inpatient and outpatient care. The zonal distribution of these hospitals are given in Table 1 (the number of hospitals sampled from various zones are indicated in parentheses in column 4).

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<sup>2</sup> The official name of Madras was changed to "Chennai" in 1996. This report will continue to use the name "Madras".

<sup>3</sup> The city is headed by a mayor, who is elected once every five years. The present mayor, M.K. Stalin, was elected in 1996. The last election was held after a gap of nearly 20 years. The corporation also has councilors representing various divisions of the city. Among many administrative functions, the corporation provides sanitation, garbage collection, drinking water, drainage facilities, and community health services. A separate health officer oversees public health services in the city. In fact, the state of Tamil Nadu has the distinction of being the first in the country to have introduced a Public Health Act in 1939, which to this day is considered a very comprehensive regulatory framework to provide public health care.

<sup>4</sup> The northern zones largely consist of the old city, while the southern zones are more recently developed. The northern zones, being the old part of the city, have many large government hospitals (both general and specialty hospitals) built during the colonial era. Many parts of central Madras are also well developed, as are parts of south Madras.

<sup>5</sup> At the time of this study, the government of Tamil Nadu was actively implementing a regulatory measure that, among other things, demands compulsory registration of all private clinical establishments (including those offering only outpatient care, diagnostic and laboratory services, by allopathic and non-allopathic professionals). Even at the time of writing this report (May–July 1998), the relevant policy was not implemented. It is hoped that under this policy a registry will be prepared, which would provide a complete picture of not only the number of hospitals but also the personnel employed, the type of services provided, etc. Eventually, the government hopes to develop and establish physical standards to be met by the private establishments. How soon this will happen is a matter for speculation! For more details on the origins of this policy and nature of debate around it, see Bennett and Muraleedharan (1998).

<sup>6</sup> Telephone directories are another useful source of information for getting the number and addresses of the hospitals in the city, but they do not help identify whether inpatient facilities are provided in a given hospital.

Table 1: Distribution of Private and Public Hospitals in Madras city (1996)

Serial Number	Zone/Area (sq.km)	Number of Divisions (population in millions)	Private Hospitals (hospitals sampled)	Public Hospitals	Community Welfare Centers (public)	Total (columns 4+5+6)
<b>Northern Zones</b>						
1	I (16)	13 (0.48)	24 (5)	2	4	30
2	II (10)	18 (0.33)	25 (5)	4	6	35
3	III (17)	18 (0.71)	19 (2)	3	5	27
4	IV (28)	14 (0.56)	25 (11)	4	6	35
sub-total		63 (2.08)	93 (23)	13	21	127
<b>Central Zones</b>						
5	V (30)	15 (0.47)	56 (14)	3	2	61
6	VI (8)	18 (0.32)	20 (2)	1	4	25
7	VII (25)	17(0.66)	28 (9)	6	4	38
sub-total		50 (1.45)	104 (25)	10	10	124
<b>Southern Zones</b>						
8	VIII (25)	16 (0.64)	47 (12)	0	3	50
9	IX (34)	12 (0.48)	18 (4)	6	3	27
10	X (37)	14 (0.52)	31 (9)	0	5	36
sub-total		42 (1.64)	96 (25)	6	11	113
<b>Grand Total (230)</b>		155 (4.8)	293 (73)	29	42	364

Population figures (1991 census); Source: Corporation of Madras (1996)

North Madras is less economically developed than South Madras. It would be necessary, therefore, to compare these two areas to get insights into how economic development within an urban cluster affects the private sector. As can be seen from Table 1, northern Madras is more densely populated (29,295 persons per square kilometer area) than central zones (23,016 person per sq.km), which are more densely populated than the southern zones (17,083 person per sq.km). Within central Madras, zone 5 has the highest number of private hospitals. This list shows that there is one private hospital per 1.30 sq.km in north Madras, while in central and south Madras there is one per 1.65 sq.km and 1.00 sq.km, respectively. Since the list provided by the corporation is highly underestimated, it cannot be said whether there are other zones with as many (if not more) private hospitals as zone 5. This report will return to this issue in the next section.

## 2.2 Scope of the Study: Types of Hospitals and Services Covered

Methodologically this is the first step in conducting this study. While the scope of the study has already been defined by the objectives set out earlier, particular services/ aspects to be studied must be specified. The study team realized that it is important to focus on specific services in order to make the study more manageable as well as to make comparisons meaningful. Given the widespread use of private hospitals for maternity care, the team decided to focus on this sector. On the basis of informal discussions with a number of physicians, the team realized that most private providers would not be



willing to share their financial data, although they were willing to discuss in general whether they were financially doing well or not.<sup>7</sup>

The study excludes both corporate public limited and trust hospitals.<sup>8</sup> In Madras city, there are only six hospitals in the former category; they cannot be compared with the large majority of small private hospitals which is the study's focus. Trust hospitals enjoy certain special tax benefits granted by the government. They are not allowed to distribute profits among shareholders; they are instead expected to plow profits back into hospital investment, either for expansion or other hospital related activities. The remaining private hospitals form the bulk of the private hospital sector in the city. The study's primary objective is to throw light on this largest segment within the private hospital market.

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## 2.3 Sample Size and Selection

### 2.3.1 Hospitals

According to the list maintained by the Corporation of Madras, there are 293 private hospitals; this excludes private clinical establishments providing only outpatient care. As mentioned above, the study intended to exclude both corporate public limited and trust hospitals from the study. Since the names of six corporate hospitals were known, the study team was able to exclude them from the sample list. But it was not possible to identify trust hospitals at the time of selection of hospitals. The team was certain that the survey would capture their identity and therefore could be excluded at the time of data entry. As it turned out, the survey happened to cover only one trust hospital, which was duly removed from the analysis.

From the list of private hospitals provided by the Corporation of Madras, the study team identified 116 reported as having bed size between 10 and 50. A very large number (129) were listed as having fewer than 10 beds, and only 16 as having more than 50 beds (of these six were the corporate public limited hospitals). For the remaining hospitals in the list, bed size was not provided.

The study began with an ambitious plan to cover about 100 hospitals. It therefore approached the 116 hospitals with bed size between 10 and 50. As expected, not all hospitals responded positively. Thus, on completion of the first round of the survey, the team prepared a second list, of 20 hospitals, all having just under 10 beds (eight or nine beds), two each from 10 zones. The final tally appears in Table 2.

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<sup>7</sup> At the time of initiating this study, the team was optimistic about getting financial data of private hospitals from the Registrar of Companies but later learnt that the data are classified as confidential and therefore are not accessible to public.

<sup>8</sup> Various ownership categories are discussed in Section 3.1.

**Table 2. Summary of Sample Size**

1. Total number of hospitals approached (1st round)	116
a. Number refused at first visit	14
b. Number refused after few visits	36
c. Number found closed	3
d. Number completed	63
2. Total number of hospitals approached (2nd round)	20
a. Number refused	5
b. Number completed	15
3. Total number of hospitals surveyed	78
4. Total number considered for the study	73

Of the 78 establishments surveyed, three were found to be small governmental community welfare centers (CWC), one was a corporate public limited hospital, and one was a trust hospital; these were eliminated from the study. The study thus was left with a total of 73 private hospitals, 24.9 percent of the total private hospitals in the city. As the next section will discuss, though the bed size provided by the corporation was not always accurate it was useful in the selection process.

### 2.3.2 Physicians

Thirty physicians from various specialties were interviewed by the study's principal investigator and researcher. Of these 30, 15 were specialists in obstetrics/gynecology (OB&GYN), five were general surgeons, five were pediatricians, and five were anesthetists. All were from the sample hospitals surveyed for this study. In addition, the choice of individual physicians was guided by two factors: (1) only one from each hospital was chosen, and (2) those who agreed early were interviewed first. The purpose of these interviews was to understand the nature of fee payment methods that exist in various private hospitals. These interviews also provided an understanding of the nature of relationship between physicians, patients, and hospitals. These are discussed in Section 3.3

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## 2.4 Data Collection Method

### 2.4.1 Survey Instruments

Two sets of survey instruments were used for data collection. One was a structured questionnaire (see Annex A) used by field investigators to collect original data directly from hospitals. The other instrument (see Annex B) was a set of questions used by the principal investigator and researcher while conducting personal interviews with physicians on payment methods prevailing in various hospitals. The details of these two questionnaires are summarized below.

The first survey instrument, for collecting information from hospitals and nursing homes, is a structured questionnaire consisting of 50 questions divided into four parts. Part I is concerned with background information on hospitals (such as nature of organization, range of specialties offered). Part II is concerned with information on infrastructure (such as water supply, power supply, and drainage connection). Part III is concerned with hospital personnel (including physicians' profiles and



consulting hours, and strength of other personnel). Part IV is concerned with information specific to maternity services, in addition to information on charges for a number of diagnostic and minor procedures (many of which relate to maternity care).

The second survey instrument, for collecting information from physicians on fee payment method and nature of relationship with hospitals, asked physicians to describe the nature of fee payment method they have adopted and whether they have any agreed basis for sharing their fees with the hospitals they visit as consultants. Interviewers also noted the physicians' professional qualifications and years of service, names of hospitals where they do consulting, etc.

#### **2.4.2 Pilot study**

The hospital questionnaire was pilot tested in six different hospitals (all with under 30 beds). This helped to fine-tune the questionnaire. The study team realized that each hospital might require three to four trips by field investigators to complete the questionnaire since hospitals often were not able to devote more than 30 minutes to a visit. Each questionnaire was estimated to consume about an hour or so, even if a hospital had ready all the information requested.

The pilot study also interviewed four physicians from different specialties. They were willing to describe the fee payment method but were not willing to specify the amount they collect. These physicians also suggested that the study restrict itself to a few questions. In fact, the brief interviews (20–30 minutes) with them were used primarily to understand their fees collection mechanism rather than anything else.

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### 3. Characteristics and Structure of the Private Hospital Sector

This section provides results of the survey conducted in 73 private hospitals in Madras city. As elaborated in the introductory section, the principal aim of this study is to obtain an understanding of the overall profile and characteristics of the private hospital sector in Madras. The results are provided under the following headings:

- ▲ Private Hospital Market in Madras City: An Overview
- ▲ Regulatory Issues: Physical and Structural Elements
- ▲ Payment Structure
- ▲ Competition and Market Strategies

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#### 3.1 Private Hospital Market in Madras City: An Overview

It is worthwhile to repeat that the study looks at a very specific segment of the hospital market. The hospitals are chosen based on their bed strength, which reflects the majority of private hospitals in the city. The study is constrained by the fact the many hospitals refused to participate in the study; it therefore worked with as many as those who agreed to cooperate, with the only condition that they should not be a corporate public limited or trust hospital and that they should not have more than 50 beds. In the end, it included a few hospitals that have more than 50 beds since investigators were not aware of the actual bed count until the survey was over.

To begin, two key characteristics of the sample hospitals, namely their ownership pattern and bed strength are summarized below.

##### 3.1.1 Sample Hospitals

###### 3.1.1.1 Ownership

Ownership can be divided into four categories<sup>9</sup>:

1. Sole proprietorship: Most hospitals in the city belong to this category. Hospitals in this category are owned by an individual (physician or non-physician). They have unlimited liability.
2. Partnership: These hospitals have two or more but fewer than 20 partners. They have unlimited liabilities. Profits are shared with partners.

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<sup>9</sup> There is yet another category called trust hospitals, as mentioned earlier. These hospitals get tax concessions since they can only re-deploy their profits in hospital related investment, and cannot distribute their profits among partners.

3. Corporate Private Limited Companies: Hospitals in this category have more than 20 but fewer than 50 partners. They have limited liability. Profits are shared with partners.

4. Corporate Public Limited Companies: These are corporate companies with limited liabilities. They are allowed to raise resources from the public through issue of shares. The profits are shared with shareholders. They need not be listed in stock markets.

Table 3 shows the distribution of sample hospitals according to ownership categories. Fifty (68.5 percent) of the 73 hospitals surveyed belong to the sole-proprietorship category; 15 (20.5 percent) are run as partnership firms; eight belong to the private limited category.

Table 3. Ownership of Sample Hospitals

Ownership Category	Number	Percentage
Sole Proprietorship	50	68.5
Partnership	15	20.5
Private Limited	8	11.0

Such a classification does not by itself tell much about nature of a hospital as an organization. For example, a hospital may be classified under sole proprietorship but may be run as a charitable hospital. Similarly there are missionary hospitals registered as trust hospitals. The study therefore asked respondents to declare whether they are for-profit or motivated by other considerations (see item 4, Questionnaire A). The sample hospitals are reclassified as shown in Table 4, which throws further light on the nature of sample hospitals considered for the study.

Table 4. Nature of Organization of Sample Hospitals

Hospital Category	Number	Percentage
Private, for-profit	64	87.7
Private, philanthropic (non-missionary)	7	9.6
Private, missionary	1	1.4
Any other	1	1.4

Sixty-four hospitals (88 percent) declared themselves as private for-profit, seven (9.6 percent) as philanthropic, non-missionary (meaning they are not primarily for-profit but may charge a small amount for the services provided). The sample has one missionary hospital, and one hospital classified itself as "voluntary hospital" under "any other" category. In India, the term voluntary hospital is often used to indicate that they are driven less by the profit motive than other concerns.<sup>10</sup>

### 3.1.1.2 Bed Size

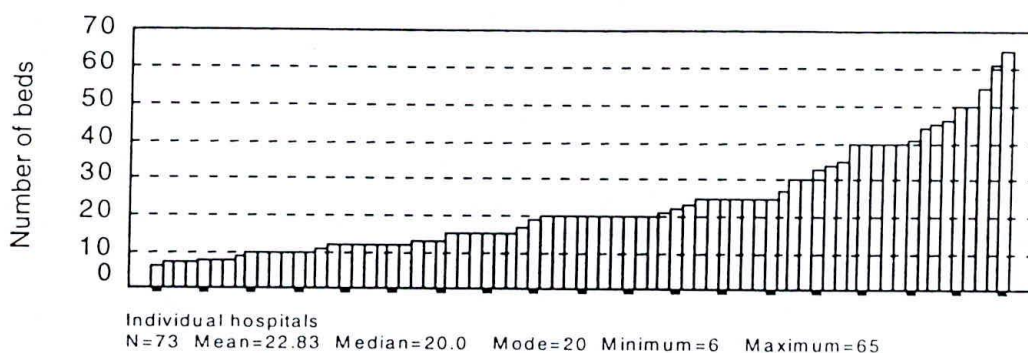
Figure 1 shows the distribution of beds of the sample hospitals. The average bed size of the sample is 22.86. As per the list provided by the Corporation of Madras, these hospitals were listed as having between 10 and 50 beds, but the survey found them to be different for most hospitals.

<sup>10</sup> While this classification may be questioned it is not a cause for worry here as analysis is not based on this classification. However, the study team believes self-declaration of motives does not fully reflect true motives!



However, except for a few hospitals, they all fall within the bed size (10 to 50) category considered here.

**Figure 1. Bed Size of Sample Hospitals  
(in ascending order)**



A large number of physicians interviewed also had an impression that the average bed size of a hospital in Madras city is between 20 and 25, which the survey bears out.

### **3.1.1.3 Ownership of Premises**

The survey showed that 64 (87.7 percent) of the 73 hospitals owned the premises they occupied, while the remaining nine were on rented premises. Among the 50 sole proprietorship hospitals, 45 owned their premises, while 12 of the 15 partnership and seven of eight private limited hospitals owned theirs.

## **3.1.2 Size and Distribution of Private Hospitals**

### **3.1.2.1 Size**

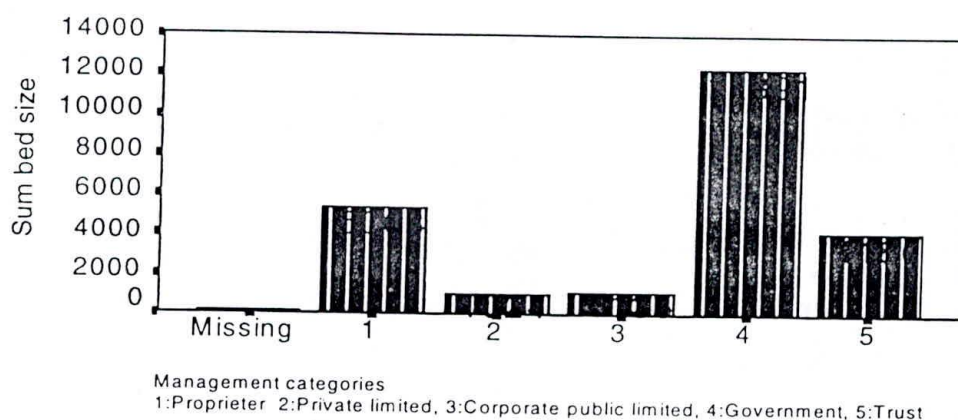
To date there is no reliable database and estimate on the size of the private hospital sector in the state of Tamil Nadu. In fact, this is true of most other states as well.<sup>11</sup> The available government sources undoubtedly underestimate the number. The list of hospitals maintained by the Corporation of Madras is not only *not* exhaustive but does not mention the bed size for many of the hospitals it lists. Besides, as noted earlier, the bed sizes shown for many hospitals are not accurate.

<sup>11</sup> For example, in Andhra Pradesh a much better database on private hospital sector has recently been prepared. For details, see Chawla and George (1996)

As the survey work was nearing completion, the Principal Investigator learned of a *Directory of Hospitals and Nursing Homes in South India* (DHNSI) published by a private consulting firm in Madras. It was first published in late 1997.<sup>12</sup> Undoubtedly, this directory is more exhaustive than the list provided by the Corporation of Madras; but it does not claim to contain names of all private hospitals in the city. Although it does not give a completely accurate picture of the size of the private sector, it provides a much better estimate of size than any other known source. Since this directory was not available at the initial stages of the study, the investigators were constrained to use only the list supplied by the Corporation of Madras in selecting hospitals. Nevertheless, a discussion of the directory's information is useful here.

The DHNSI contains the following information about private hospitals in the major cities of Tamil Nadu, Kerala, Karnataka, and Andhra Pradesh: (a) name of the hospital (b) address (c) bed size (d) ownership category and (e) specialties offered, with names and qualifications of physicians. According to DHNSI hospitals are classified as (a) Proprietorship (b) Private Limited Companies (c) Corporate Public Limited (d) Government and (e) Trust hospitals (see Figure 2). Partnership hospitals are not listed separately but rather are merged with the sole proprietorship category.

Figure 2. Size of Private and Public Hospitals, Madras City



The DHNSI lists 436 hospitals in Madras city. Of these, only 25 are government hospitals. The DHNSI excludes about 60 community welfare centers maintained by the Corporation of Madras in various zones of the city. CWCs are primarily expected to provide outpatient care and conduct normal deliveries.<sup>13</sup> According to the corporation, CWCs do not have more than 10 beds each. This needs to be kept in mind while estimating the total beds in the hospital sector in the city.

<sup>12</sup> *Directory of Hospitals and Nursing Homes in South India*, compiled by CommSearch (India) Private Limited (Madras, 1997)

<sup>13</sup> They rarely conduct caesarean deliveries.



**Table 5: Number and Bed Size of Private and Public Hospitals in Madras City**

Ownership Category	No. of hosp.	No. of beds	Percentage of Total	Average bed size (col.3/col.2)
1. Proprietor	324	5368	(22.2)	16.59
2. Private Limited	18	1024	(4.2)	56.89
3. Corporate Public Limited	6	1135	(4.7)	189.16
4. Government	25	12391	(51.4)	495.64
5. Trust	35	4186	(17.7)	119.60
6. No. of hospitals that did not report bed size	28	n.a.		
Total	436	24104		
Private Beds (sum of rows 1,2,3, and 5)	383	11713	(48.6)	30.60
Public Beds (row 4) :	25	12391	(51.4)	495.64

Source: DHNSI, 1997

The average bed size of a private hospital is 30.6, about eight beds more than the average size of sample hospitals. Overall, the bed-size of the private hospital sector equals that of public hospital sector—the latter is only marginally larger than the former. But evidently, there are “some” more private hospitals that are not listed in the DHNSI, as noted earlier. Assuming another 100 of them with an average size of 15 beds, the private sector would have only another 1500 beds. At the same time, about 600 beds should be added to the public sector, to account for the 60 CWCs that the directory does not mention. As a result, the public-private shares of the hospitals market (measured in bed size) remain more or less the same.

### 3.1.2.2 Distribution

The previous section noted that zone 5 has the highest number of private hospitals, followed by zone 8. At the aggregate level, the northern and southern zones have more or less equal numbers of private hospitals (93 and 96, respectively), not very much lower than the number of hospitals in the central zones (104).

The DHNIS provides the distribution of private hospitals according to postal codes (pin codes), but it does not mention the administrative zones in which these hospitals are located. An administrative zone has several postal areas (pins), and several of them cut across more than one administrative zone. Table 6 therefore shows only the distribution of private hospitals according to postal pin codes within the city and their respective bed strength.<sup>14</sup>

<sup>14</sup> Postal pin codes do not follow any geographical pattern. For example, some postal zones (10, 17, 18, 40 and 102 are contiguous areas, but zones 13, 14, 20, and 21 are not contiguous. So it becomes very complicated to comment on concentration of hospitals by adding successive postal zone numbers. Observations on hospital distribution are therefore restricted to individual postal zones as given in the DHNIS. But they do reveal some interesting features of the market in the city.



**Table 6. Distribution of Private Hospitals and Bed Strength w.r.t Postal Pin Zones**

Postal pin code	No. of private hospitals	Total beds
1	2	114
2	1	5
3	4	150
4	12	589
5	4	142
6	5	830
7	4	74
8	1	75
10	28	776
11	5	57
12	1	13
13	2	107
14	8	101
15	6	71
16	6	80
17	27	463
18	5	72
19	7	111
20	14	447
21	18	664
23	5	41
24	8	206
26	4	984
28	11	240
29	3	62
30	5	58
31	3	78
32	3	113
33	4	48
34	7	437
35	4	255
39	8	74
40	13	384
41	4	95
42	3	56
43	1	10
44	6	76
45	10	298
47	1	7
49	4	46
50	5	32
52	6	67
53	6	62
56	5	39
58	1	5
59	2	132
60	5	224
61	6	104
72	9	97
73	3	28
75	5	90
77	2	25

Postal pin code	No. of private hospitals	Total beds
78	5	67
79	4	61
81	9	106
82	2	25
83	9	155
84	5	171
86	4	70
87	5	45
88	6	115
89	1	45
91	3	40
92	3	37
93	1	6
94	2	34
101	2	10
102	7	73
106	2	40
107	1	5
116	4	1067
unidentified	3	127
<b>Total</b>	<b>383</b>	<b>11713</b>

Postal pin 10 has the highest number of private hospitals, followed by 17, 21, and 20. Pin 10 is contiguous with 40 and 102, which make it the most highly concentrated hospital neighborhood in the city. It is possible to add several contiguous areas, or find other clusters as well. However, what is more important to observe is that postal zones with higher concentrations of hospitals do not necessarily have higher bed strength. For example: though pin 10 has the highest number of hospitals, it has only 589 beds, whereas pin 116 has 1,067 beds with only four hospitals. This is because pin 116 has a large private teaching hospital with 1,050 beds. Pin 26 has 984 beds with only four hospitals, because of the presence of two large private hospitals. Population data with respect to postal pin codes is not available; such data would allow calculation of distribution of per capita private/public beds in poorer and more affluent regions within the city.

Another important fact should be noted in Table 6: There are many postal pins without any private hospitals. While this might be partly due to possible lack of coverage by the directory, it might also be true that there are no private hospitals in some of these areas. In particular, pins 62–71 have no private hospitals. Two of these areas belong to the Army, and private hospitals are not allowed to be located in such areas.

### 3.2 Regulatory Issues: Physical and Structural Elements

As noted in the introductory section, the private hospital sector in India has grown passively over the years, without any kind of state policy directing its growth and development. As a result, the private hospitals have not followed any norms either with regard to use of physical infrastructure (space per bed, provision of certain utilities, etc.) and structural aspects of care (medical and paramedical personnel employed, services offered, etc). Given this situation, it is not surprising that there is hardly any recognition of the need for (clinical and non-clinical) performance assessment either from within private sector or policymakers.

An important objective of this study therefore is to record the availability (not use) of these various elements that contribute to patient care in hospitals. This section therefore attempts to provide an overall view of the prevailing conditions and thereby draw some inferences and hypotheses that have policy implications.

### 3.2.1 Physical Elements

An important aspect of this study is to understand how far patients receiving care in private hospitals have access to certain basic physical infrastructural facilities. These are summarized below.

#### 3.2.1.1 Space Availability

Availability of space per bed has an important bearing on the overall cost of delivering care and also on the quality of care. While there are no standards as yet defined by law in this respect, it is essential first to know what is the prevailing practice in private sector.

Table 7 shows that nearly 80 percent (34 of 43 hospitals) have less than 400 square feet available per bed. Five have more than 500 square feet per bed. *The average space shown here reflects the overall space availability for administrative and clinical purposes, including, laboratories, consulting rooms, stores, etc.* Hospitals surveyed did not provide disaggregated data on space being used for various purposes (such as outpatient care, laboratory services, operation theatre).

**Table 7. Space Availability per Bed**

Space Available (in square feet)	Number (n=43)	Cumulative Percentage
<= 200	12	27.9
201-300	11	53.5
301-400	11	79.1
401-500	4	88.4
> 500	5	100.0

Average: 344.19 sq.ft.

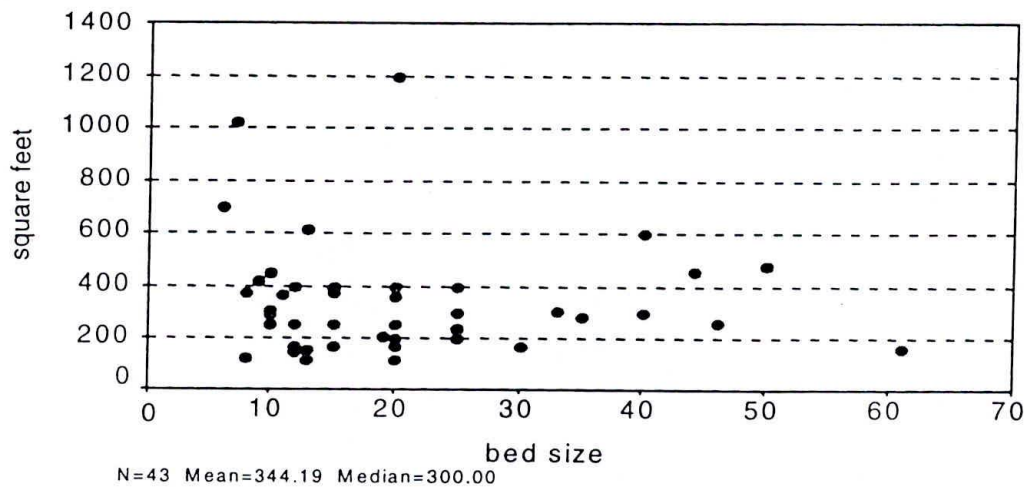
Median: 300.00 sq.ft.

Minimum: 115.38 sq.ft; Maximum: 1200 sq.ft

Figure 3 plots area per bed against bed size. This shows that large hospitals do not necessarily have more area per bed than small hospitals. In fact, the few that have more than 600 square feet per bed are those with bed size of 20 or less.



**Figure 3. Bed Size versus Area Available per Bed**



### 3.2.1.2 Water Supply and Drainage

Madras city is not known for its abundance of water. Most people get their water (for domestic purposes) either on alternate days or even once in three days or so. The last two years (1996–98) have not been so bad in that water is distributed more or less on alternate days for domestic consumption. In this light, it is important to know how well private hospitals are equipped with this essential commodity. Of the 73 hospitals surveyed, only two depend exclusively on the public water system. Twelve (16.4 percent) have their own wells with pump sets. The remaining 59 (81 percent) depend on more than one source of water for daily use. Most respondents did not mention the quantum of water they get from various sources.

All 73 hospitals had overhead tank for storage. It is difficult to comment on the tank capacity in relation to occupancy rates or turnover since the study does not have reliable data on these key variables. But nearly 36 percent (26) of them provide protected drinking water—using “Aqua-guard” to filter water to make it potable. Nearly all of them provide hot water for bathing purpose. Seventy-one hospitals (97 percent) have drainage connection—a rather high figure that is contrary to the general belief among people.

### 3.2.1.3 Power Supply

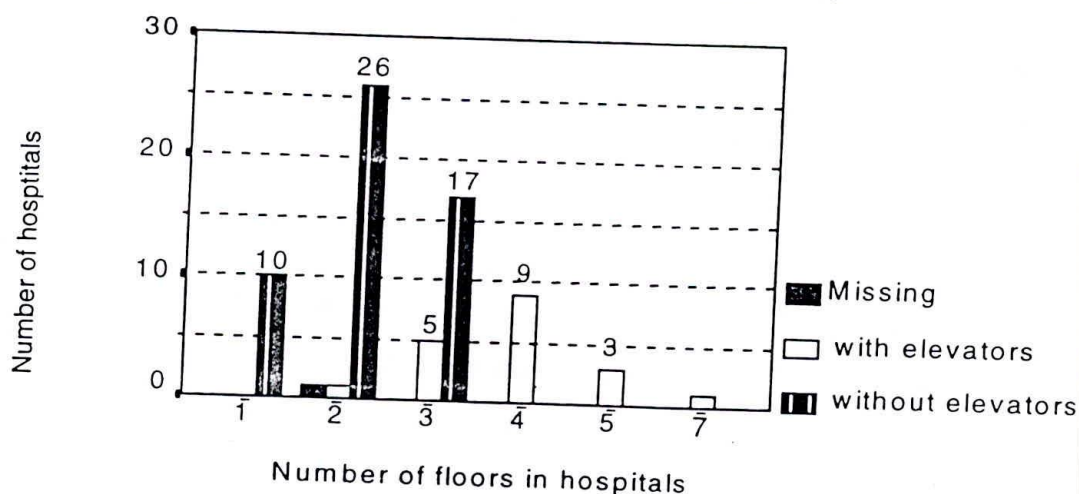
Sixty-six hospitals (90.4 percent) have a generator for back-up power supply. Several physicians felt it necessary to have back-up power supply particularly because they often conduct cesarean deliveries and other surgical procedures.

### 3.2.1.4 Elevator

Few hospitals (19) have elevators. Provision of this facility depends primarily on whether the types of patients admitted really require it for patient care. In addition, it also depends on where such patients are accommodated within the hospitals. For example, a hospital may have all their inpatient

beds in the ground floor.<sup>15</sup> Figure 4 shows that only five of 22 hospitals with three floors have an elevator. Out of 28 with two floors, 26 do not have an elevator. All hospitals with more than three floors have an elevator.

Figure 4. Number of Hospitals with Elevators



### 3.2.1.5 Intensive Care Unit Facility

At present there is no accepted definition of an intensive care unit (ICU). The government has no official definition/norm, and the private sector has hardly any consensus on what constitutes an ICU. In fact, each hospital practically sets its own standards, and there are no norms against which they could be compared.

Out of 73 hospitals in the study, 31 (42.5 percent) reported having an ICU. Floor-wise distribution of ICUs are: 14 in the ground floor, 11 in the first floor, four in the second floor, one in the third floor, and one in the fourth floor.

Out of 22 hospitals with three floors, 10 have an ICU. Of these 10, six have it located in the ground floor, three in the first floor, and one in the second floor. But as noted above, only five of these hospitals have an elevator.

Common sense dictates that if an ICU is located above ground floor, patients should have access to an elevator or a ramp for moving patients to higher floors. Otherwise, emergency cases would have to be carried physically, which would not only be difficult but could often be objected to on medical grounds; thus lack of facilities result in poor quality of patient care. These are matters of policy concern in setting physical standards in hospitals. Several physicians confided during personal interviews that there are many hospitals where emergency cases are being carried physically to higher floors for want of an elevator or ramp facility.

It is also important to look at the number of beds accommodated in ICUs. Table 8 shows that a large majority (86.7 percent) of hospitals has five or less beds per ICU, but there are also hospitals with six or more beds per ICU.

<sup>15</sup> In India, the ground floor refers to what is considered the first floor in the United States. For example, if a hospital in India has beds in the "third floor, in the United States it will be referred to as the fourth floor. This distinction is essential to avoid possible confusion.

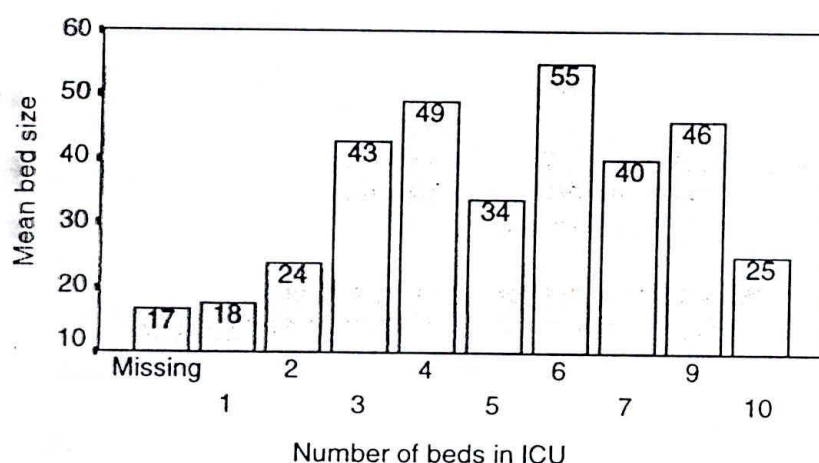


**Table 8. Number of Beds in ICU: Frequency of Hospitals**

Beds per ICU (reported)	Number of hospitals	Percent
1	6	20
2	7	23.3
3	3	10
4	3	10
5	7	23.3
6	1	3.3
7	1	3.3
8	.	..
9	1	3.3
10	1	3.3
Total	30	100.0

Figure 5 shows that, in general, bigger hospitals have more ICU beds than do smaller hospitals. However, there are exceptions: the study sample contains a hospital having 10 ICU beds out of a total of 25 beds. Many physicians expressed that this is not an unusual case. Closer examination of this hospital's record shows that all 10 of the ICU beds are located in the first floor and that there is no elevator facility. Although there may be only a few such hospitals in the city, from the public policy point of view it signifies an important phenomenon in the growth of the private hospital market that requires a more detailed study because of its relevance to the current debate on regulation of private hospital sector.

**Figure 5. ICU Bed Size versus Mean Bed Size of Hospitals**



### 3.2.1.6 Ambulance

A large majority of hospitals (53, or 73 percent) hire ambulance services when required. Twenty reported that they have their own ambulance service. It is interesting to note that eight out of the 20 that have their own ambulance services have fewer than 10 beds. Perhaps it depends upon their location and the nature of emergency cases they admit. This highlights the fact that some of the smaller hospitals are much better equipped compared with larger hospitals in meeting emergency



services. No one provided data on the rent paid for hiring ambulance services, nor the amount charged to patients for using ambulance services.

### 3.2.1.7 Pharmacy

Nearly half the hospitals surveyed (53 percent) have a pharmacy shop within their premises. Among these, 17 hospitals have 20 or fewer beds, while many hospitals with more than 40 beds do not have a pharmacy. Many physicians opined that having a pharmacy within the hospital would help them "increase access to care, overall revenue, and also their competitiveness."<sup>16</sup> It is not known how many of the hospitals own the pharmacies located within their premises. It is possible that in cases where ownership is different, hospitals and pharmacies may enter into a "contract" based on volume of sales or other bases. This was hinted at by two of the physicians interviewed by the PI. The policy implications of this are serious and will be discussed in the concluding section of the report.

### 3.2.1.8 Laundry

A significant number of hospitals (18, or 25 percent) do not have facilities for washing patients' cloths, nor do they have a laundry. This includes many hospitals with more than 40 beds. In this respect, smaller hospitals seem to cater better to the needs of the patients. This will not hold good for much larger corporate public limited hospitals, which cater to richer patients who can afford to use costly laundry facilities.

### 3.2.1.9 Baby-friendliness

Baby-friendliness is a global movement initiated by WHO and UNICEF. It "aims to give every baby the best start in life by creating a health-care environment where breast-feeding is the norm." The government of Tamil Nadu in 1993 implemented The Baby-Friendly Hospitals Initiative in public and private hospitals and maternity centers, and issued a set of guidelines to promote practice of breast feeding. An important aspect of this policy is to discourage advertisements/pictures and promotion of breast-milk substitutes within hospital premises.<sup>17</sup> Those hospitals that satisfy the various norms of this initiative are declared "Baby-Friendly" and are publicized as such. This may be thought of as a kind of voluntary accreditation system, restricted to maternity services. Only 11 of 73 hospitals (15 percent) surveyed have been declared as baby friendly, although 43 stated that they do not store breast-milk substitutes in their premises.

Most hospitals (61, or 84 percent) do not have any play area for the children of their wards. While this is not yet considered essential to patient care by providers, many physicians felt strongly that it would substantially enhance the overall satisfaction of the patients, particularly of women delivering their second or third child and who are accompanied by the siblings (who are often less than 2 or 3 years of age). While it may not be reasonable to ask for a play area in urban areas where real estate prices have risen considerably over the last decade or so, the survey does reveal absence of a strongly felt need by patients.

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<sup>16</sup> Personnel interview with PI.

<sup>17</sup> Summary of the Indian National Code for Protection and Promotion of Breast-Feeding is available with the Principle Investigator.

### 3.2.2 Staffing Issues

#### 3.2.2.1 Physician Availability

The pilot survey revealed that many hospitals use the part-time services of specialist physicians as well as general physicians. These specialists visit for a few hours on certain days or all days of a week. This report refers to them as "Visiting Consultants" (VC). Some physicians are employed as "Duty Doctors" (DC) who work for at least eight hours a day (usually they work for much longer hours and are also expected to work on call). The survey collected visiting hours of all physicians (VCs and DCs) in a week; this yielded the total number of hours that physicians spend for patient care (both inpatient and outpatient) in a week. This is a better indicator of availability of physicians than mere number of physicians associated with a hospital.

From the available data, the following variables were calculated:

- ▲ Total physician hours available per day (TPHD): Data on total physicians visiting hours in a week is divided by 7 to get TPHD.
- ▲ Total physician hours per day per bed (TPHDB): This is obtained by dividing TPHP by number of beds in hospital.
- ▲ Average physician hours per day (APHD): This is obtained by dividing TPHP by the number of physicians associated with respective hospitals.

The values are summarized in Table 9.

**Table 9. Number of Hours Available per Physician per Day and per Bed**

Variable	Mean	Minimum	Maximum	Median	std. div	N
TPHD	18.51	2.57	90.00	13.86	16.43	68
TPHDB	1.01	0.15	9.00	0.67	1.18	68
APHD	3.11	0.23	10.00	2.31	2.37	68

Physicians spend an average of 3.11 hours per day in a hospital. The median falls at 2.31 hours, the minimum and maximum at 0.23 hours and 10.00 hours, respectively. There are 20 hospitals with four or more hours available per physician per day. Of these 20, only five have more than eight hours per day. Such a distribution reflects an important structural aspect of the private sector, namely, that most of them have very few full-time physicians (employed on a full-time basis). Most are employed as consultants on a visiting basis.

Per bed, only 1.01 hours is being spent by all physicians put together per day, with the median being at 0.67.

Whether or not this is adequate is a matter for further inquiry, which this report cannot do for want of data. Adequacy depends on several factors, including the overall patient load in different hospitals. With data on total patient load, the report would have been able to comment on this



although in a tentative manner. Also unavailable was data on the breakdown of physicians' time for inpatients and outpatients. Even with this data, the report would have been constrained to comment on the quality of patient care delivered. These are issues are discussed in the concluding section of the report.

It would have been more useful to isolate the hours spent by VCs and DDs, but it was not possible since most hospitals gave only the total hours of visits rather than actual hours of visits for physicians on visiting days. As a result, it is also difficult to comment on the maximum and minimum number of doctors on duty at any one time of the day.

### 3.2.2.2 Auxiliary Staff Availability (Nurses and Ayahs)

It is equally important to look at the strength of auxiliary personnel employed/associated with a hospital. Here, we consider only the number of ayahs and qualified nurses for analysis. Ayahs perform a variety of functions, assisting physicians and nurses in delivering care to patients. In fact in most hospitals, they perform a significant role in delivering maternal and child care. An ayah usually has a few years of education and is trained on the job. Nurses, on the other hand, are formally qualified with about three years of training either in a private or government nursing school. They usually are employed for eight hours a day and work on shift system. Typically, both nurses and ayahs get one day off per week.

To measure the extent to which auxiliary staff support patient care, the following two variables are calculated.

1. Nurse time per day per bed (NTDB): This is the sum total of all nursing hours per day in a week, divided by the number of beds in respective hospitals. Each nurse works for eight hours a day for six days a week.

So first calculate total Nursing Time in a Week of a hospital (NTW) as

$$= \text{Total number of nurses} * 8 * 6 =$$

This NTW is divided by 7 to get Nurses Time available per Day of a week

$$(\text{NTD}) = (\text{NTW}) / 7$$

NTD should be further divided by number of beds in respective hospitals to get

$$\text{NTDB} = (\text{NTD}) / \text{number of beds}$$

2. The calculation of Ayahs' Time per Day per Bed is similar:

$$\text{ATDB} = \{(\text{No. of ayahs} * 8 * 6) / 7\} / \text{number of beds}$$

Results of these calculations are summarized in Table 10.



**Table 10. Number of Hours Available per Nurses and Ayahs per Day per Bed**

Variable	Mean	Minimum	Maximum	Median	std.div	N
NTDB	3.244	0.00	9.681	2.857	1.780	71
ATDB	2.051	0.00	6.857	1.714	1.214	69

Some interesting observations emerge from these simple ratios: Hospitals on average depend more on nurses than ayahs per bed on any given day. This is contrary to the general impression of policymakers that most private hospitals are run with the help of ayahs and very few use qualified nurses for patient care. It is possible to argue that those who participated in the survey might have deliberately given incorrect, higher figures on the number of nurses employed for fear of misuse of such information by the researchers. But there is little reason to support such argument.

From the analysis, researchers note that there are two hospitals with no ayahs present, but their NTDB are 3.43 and 2.86, respectively. Similarly, there is one hospital with no nurse present, whose ATDB is 3.45.

### 3.2.2.3 Dependence on Public Sector Physicians

In Tamil Nadu, as in most other states of India and especially in large urban areas, it is common for government doctors to work as consultants in private hospitals. Therefore, this survey collected information on the number of government doctors in private hospitals engaged as visiting consultants.

Forty-seven hospitals (66.3 percent) reported having government doctors on their panel as VCs. But this by itself may not reveal much unless we also know how many on average are associated per private hospital and their specialty. The overall mean number of government doctors as VCs for the sample hospitals (n=70) is 2.16. Table 11 provides distribution of government doctors in various private hospitals .

**Table 11. Government Doctors in Private Hospitals**

No. of government doctors in private hospitals	No. of private hospitals	Percentage	Cumulative percentage
1	11	24.4	24.4
2	15	33.3	57.8
3	4	8.9	66.7
4	4	8.9	75.6
5	2	4.4	80.0
6	3	6.7	86.7
7	3	6.7	93.3
9	2	4.4	97.8
15	1	2.2	100.0

Mean 3.356  
n=45 (two did not provide information)

It would be more useful to know the total number of hours spent by government doctors in various private hospitals. But the survey did not obtain this information; hence it is not possible to comment on this important aspect.

Out of the 47 hospitals, 30 (63.8 percent) belong to the sole proprietorship category, 12 (25.5 percent) to the partnership category and five (10.6 percent) to the private limited category. Sole proprietorship and partnership hospitals with government consultants have a larger mean bed size than those without government consultants. In the case of private limited hospitals, the reverse is true (see Table 12).

**Table 12. Government Doctors in Private Hospitals by Hospital Ownership Category**

Ownership Category	Mean bed size of private hospitals	
	With govt. Doctors as consultants	Without govt. Doctors as consultants
Sole proprietorship	21	17
Partnership	28	17
Private limited	31	43

Table 13 shows the extent of dependence on government doctors according to various categories of hospitals.

**Table 13. Average Number of Government Doctors in Private Hospitals according to Ownership Category**

Ownership category	Mean	n
1.Sole proprietorship	3.4483	29
2.Partnership	3.2727	11
3.Private limited	3.0000	5
4.Overall	3.3556	45

Although the mean values for individual categories do not differ greatly from each other, it should be emphasized that the mean for hospital category 1 (sole proprietorship) is higher than that of other two categories.

Visiting Consultants from public hospitals deliver care in about 25 different specialty areas in private hospitals. They are most highly used in the following areas: general surgery, OB&GYN, plastic surgery, orthopaedics, cardiology, paediatrics, anaesthetics, and gastroenterology. Neurophysicians in government hospitals are also in high demand in the private hospital sector.

### 3.2.3 Services Offered

Several physicians perceive competitiveness of a hospital in terms of its ability to provide a variety of specialty services. As noted earlier, most hospitals do not have full-time specialists. Instead they depend on consultants visiting for a few hours on specified days of the week. There are also many hospitals (small and big) that offer specialists—by appointment (based on type of care the patients require); they are called “Consultant-By-Appointment” (CBA). In fact, many physicians



opined that a significant portion of the private hospitals provide specialty care with CBAs. Many of these VCs and CBAs are from the public hospitals that are allowed by law to do private practice, as discussed above.

This section provides an overall picture of the range of services provided according to different ownership categories.

### 3.2.3.1 Range of Services

On average, a hospital offers services in about 18 different areas. This does not mean that these hospitals have either VCs or DDs in all these areas. As mentioned above, many hospitals manage to deliver care with CBAs, which explains the high average number of areas of care offered.

Overall, OB&GYN services are the most widely offered among the sample hospitals (87 percent). This is followed by general medicine, general surgery, paediatrics, and family welfare planning (which refers mainly to sterilization and maternity related care). Diabetes and urological care are also common, suggesting a high demand for them. (There are specialized centers for these service areas in the city, but this study does not cover them.) Table 14 shows the 15 most widely offered service areas according to hospital ownership category.<sup>18</sup>

As the average size increases (partnership and private limited hospitals), cardiology, cancer, and orthopaedics get included in the top 15 areas. The survey could not learn whether these hospitals also offer surgical services in these areas; the information was requested but most hospitals did not respond.

**Table 14. Fifteen Most Commonly Offered Service Areas in Private Hospitals**

S.No	Sole proprietorship hospitals (n=50)	Partnership hospitals (n=15)	Corporate private limited Hospitals (n=7)
1	Obstet. & Gynec. (86)	General Medicine (100)	Radiology (100)
2	General Medicine (82)	Emergency (93)	Obstet & Gyn (86)
3	General Surgery (82)	Obstet & Gynec. (93)	Paediatric (86)
4	Paediatric (76)	Diabetology (87)	General Medicine (86)
5	Family Wel. & Plg. (74)	General Surgery (87)	General Surgery (86)
6	Emergency care (66)	Family Wel & Plg (87)	Emergency (86)
7	ENT (60)	ENT (80)	Cardiology (72)
8	Tuberculosis (56)	Gastroenterology (73)	Cancer (72)
9	Burns (56)	Paediatric (73)	ENT (72)
10	Urology (54)	Cardiology (67)	Gastroenterology (72)
11	Orthopedic (54)	Cancer (67)	Nephrology (72)
12	Diabetology (52)	Urology (67)	Orthopedic (72)
13	Physiotherapy (50)	Tuberculosis (67)	Physiotherapy (72)
14	Gastroenterology (50)	Burns (67)	Psychiatry (72)
15	Cardiology (48)	Orthopedic (67)	Tuberculosis (72)

Source: Survey

<sup>18</sup> The survey does not report on the range of laboratory and diagnostic services due to lack of response.



### 3.2.3.2 Networking with Diagnostic Centers

All physicians interviewed without exception said that it is common to find a kind of networking between hospitals and independent (stand-alone) diagnostic centers in the city. This is particularly true of smaller hospitals, which "find it difficult to invest a large capital on medical equipment" even though they frequently use such equipment. Typically small hospitals require referral centers for radiological, CT scan, MRI, and dialysis services. For these services, physicians said, "there is a direct contract between hospitals/physicians and these diagnostic centers." This is a very sensitive issue from a physician's perspective as well as from the public's point of view. It is not uncommon to hear people talk about the "deals" between the doctors/hospitals and diagnostic centers. In fact, the principal investigator of this study knows many physicians who confided that typically a doctor gets a fixed share of the charges on every patient referred to a diagnostic center. This is not to say that all physicians in the city support this practice; still, it is a highly prevalent practice and practically no one interviewed denied its existence. It is impossible at present to collect further information on the nature and extent of such contracts; however it is possible to make at least the following observations from the data available (refer to item 35, Appendix A).

Forty-five of 72 hospitals in the study (62.5 percent) reported that they have a "contract" with one or more diagnostic centers or with hospitals for diagnostic purposes. The 27 that reported they did not have any contract may still be sending out their patients for diagnostic purposes: These patients may either be going to centers of their choice or may be guided by their physicians.

Forty of the 45 hospitals (89 percent) have a contract with diagnostic centers or big hospitals for CT Scan and MRI services. Twenty-three of the 45 (51 percent) reported having a contract with one or more centers/hospitals for x-ray services. Only 14 (31 percent) hospitals reported having a contract for ultrasound services; this may be due to the fact that a large number of hospitals offering OB&GYN care prefer to have this facility within their premises since they use it frequently.

It should be noted that the study does not say anything about the frequency with which patients are referred to by the hospitals, nor whether these referrals are appropriate or not; this is beyond the scope of the study. Nevertheless, many physicians interviewed for the study confided "that some if not most of these referrals are clearly motivated by financial incentives inherent in the referral system."<sup>19</sup> Payment methods in the hospital market provide incentives for over-servicing. The next section outlines the nature of these payment methods and their implications.

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## 3.3 Payment Methods and Incentives for Quality

The private hospitals in Madras city, as presumably in most other urban areas, have a peculiar financial arrangement with visiting consultants insofar as fee payment is concerned. This section outlines the salient features of this important aspect of the private hospital sector<sup>20</sup> as well as the nature of the physician market and the ways it can influence the competitive ability of private hospitals.

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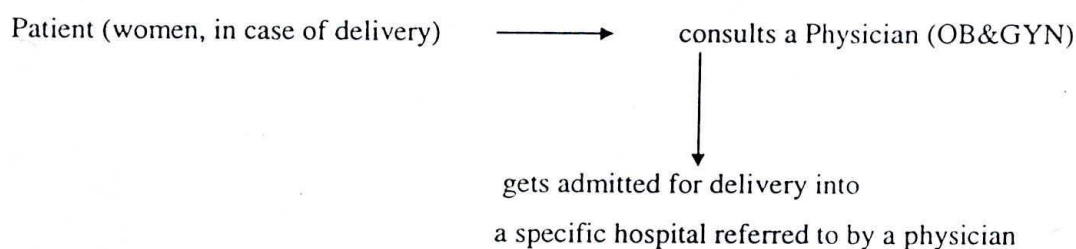
<sup>19</sup> Interview with PI.

<sup>20</sup> for details on sample size and other methodological aspects related to this section, refer Section II.3.

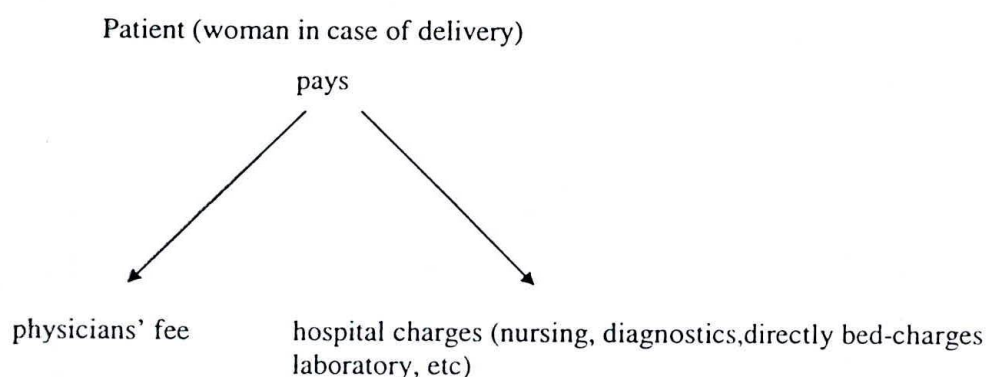
### 3.3.1.1 Flexible Fee Schedule

There are three different parties involved in the payment process: patient, physician, and hospital. It is well known that most payments for outpatient and inpatient care in India are made out of pocket. Very few are paid by either employers or private/public insurance companies.<sup>21</sup> But there is literally no account of the nature of transactions that take place between the three parties involved.

Typically, the flow of transactions for a delivery case take place as follows: a woman consults an OB&GYN specialist for antenatal care, and is referred to a hospital. Generally, after considering the cost of care and the patient's economic status, the OB&GYN refers the patient a hospital where he/she is a VC. These deliveries are called "referred cases." (If a doctor consults a delivery case not referred by himself/herself but at the request of the hospital, it is called a "hospital case"). Diagrammatically this is shown below.



As one physician put it: "hospitals where we are working as VCs expect us to refer our cases to them for inpatient care. But the nature of arrangements between us helps all the three parties mutually." The consultation fee is collected directly from the patients by the doctors. *The hospital does not interfere with what goes on between patient and VC.* Patients also pay the hospital directly for other services such as laboratory, nursing, and canteen charges. *The doctor does not interfere with what goes on between the patient and the hospital.* So the patient makes two different transactions as shown below:



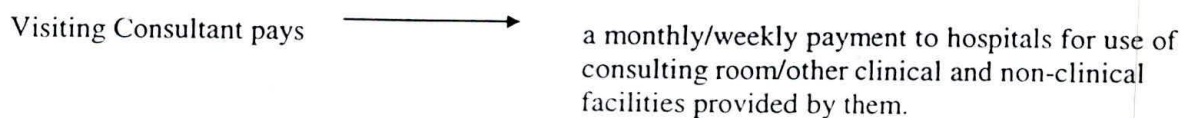
But there is also another transaction, which takes place between VCs and hospitals. The VCs generally pay a fixed rent for the space and other infrastructural facilities provided by the hospitals. The amount paid depends on the number of visiting days per week by the physician, specialty, size

<sup>21</sup> World Bank (1995)

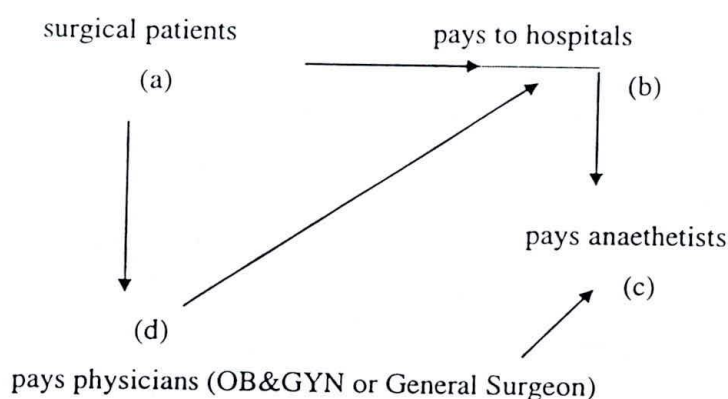


and popularity of the hospital, and other factors. Needless to say the physicians can bargain on the rent depending on their own popularity.

So the third set of transactions between VCs and hospitals may be shown as:



In case of caesarean deliveries or a surgical procedure, where an anaesthetist and a general surgeon will be involved, the nature of transactions between the parties involved is different, because of the additional medical personnel. In the case of a caesarean delivery, the OB&GYN and the hospital usually have a panel of anaesthetists to help them conduct the delivery. Typically, the anaesthetist's fee is independent of physician's fee. The physician may recommend a lower anaesthetist's fee depending upon patient's financial position. This amount is collected either by the physician as part of his/her fee or by hospital as part of other service charges, and paid to anaesthetist later. The transactions follows the route *a-b-c*, or *a-d-c*, as shown below. The diagram shown below also summarizes all transactions between patients, physicians, and hospitals discussed above.



Of course, in addition to this, the patient would have to pay for other hospital services (diagnostic, laboratory, etc). For a "hospital case", the physician is likely to charge 10 to 15 percent more than that for a "referred case." This extra charge goes into the account of the hospital. This is common in most hospitals surveyed. The lower charges for the "referred cases" may be interpreted as a form of discount offered to patients since they are known to physicians personally.

It is not possible to provide information on consulting fees collected per case or visit, since it depends on the patient's economic status. Many physicians said: "in fixing fees we keep in mind patients' economic background as well as medical conditions of patients." Fees for many diagnostic and laboratory services and hotel facilities provided by hospitals also vary depending upon the type of room occupied by patients. The nursing charge is rarely fixed in these hospitals; it also varies according to patients' economic status and the category of the hospital room. If physicians know that a patient is covered by insurance, they would vary their fees accordingly. Hospitals also depend on the physicians to get patients' economic status while fixing their service charges.

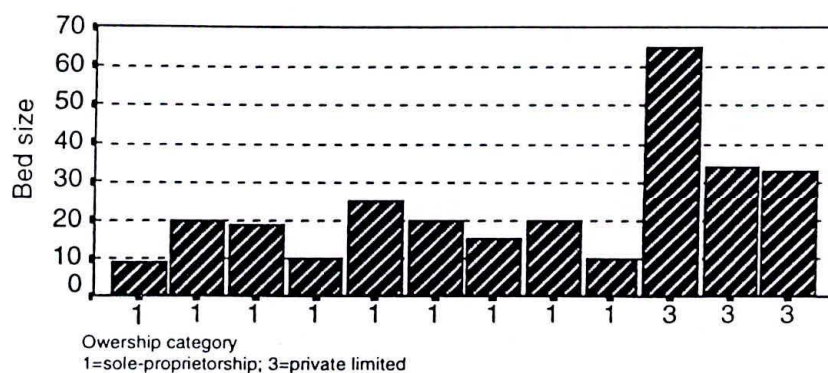
The above account of fee payment is most widely prevalent in the city. But there are variations across hospitals. Two such variations are noted below.



### 3.3.1.2 Fixed Fee Schedule

In some hospitals, physicians' fees are fixed. Twelve of 72 hospitals (16.7 percent) reported that they fix physician fees. Among these 12, nine belong to sole-proprietorship category, the remaining three to the private limited category (see Figure 6).

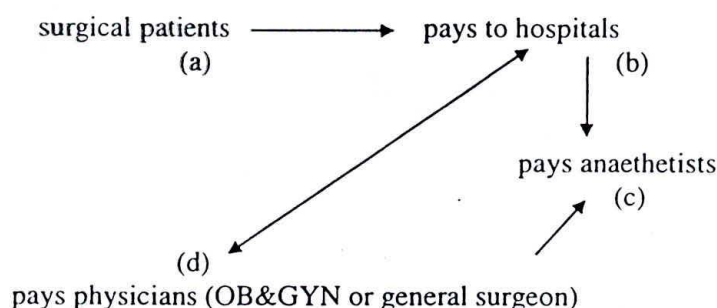
Figure 6. Ownership by Bed Size of Hospitals Where Physicians' Fees are Fixed



What is important to note here is that except for those in category 3, others can be classified as small hospitals. Fixed fee schedules are not uncommon in small hospitals.

### 3.3.1.3 Fees Sharing System

Some responding physicians pointed out a third variation in payment method, which is perhaps more common in large hospitals, particularly in certain specialties such as cardiology, urology, and neurology. Here, the fees are fixed per consultation but the patient pays the fee directly to the hospital. For each payment, a physician code is entered. As a result, the total fee collected against individual physicians can be obtained over any period of time. At the end of every month, or week, a fixed percentage of this total fee is paid to the physician. In addition to this, the physician may get an incentive amount based on volume of patients consulted. This may be shown diagrammatically as given below.



There is here a two-way transaction between, in contrast to the one-way flexible fee payment arrangement. Under this fee sharing system, the hospital first collects the fees from the patient and then shares them with physicians on a certain agreed basis (arrow direction from b to d). The transaction flow from physician (a) to hospital (b) remains the same as in flexible fee payment arrangement.

### 3.4 Competition and Market Strategies

Most physicians opined that providers in general are aware of the charges prevailing in the market for comparable types of services offered by various hospitals. Providers use this knowledge, rather than unit cost of provision, to fix their own charges for various services. The study therefore decided to obtain a picture of the prevailing charges for certain services, and so asked hospitals to provide charges for a number of services/procedures, mostly related to maternity services since this is the focus of the study. (Table 15 shows the summary statistics<sup>22</sup>). It is important to note that this information is very difficult to collect since providers consider it very sensitive. In spite of much time and effort to convince them of its value to the study, only a few came forward to provide such information. However, even this limited information is extremely helpful in understanding the overall characteristics of the private sector.

This section analyzes the variations in charges for certain services across all sample hospitals and then presents them across postal zones classified as "poor" and "better-off" neighborhoods in the city.<sup>23</sup>

#### 3.4.1 Charges: Aggregate Level

- ▲ In the diagnostic (items 1, 3–5, and 7, in Table 15), a urine test costs is least expensive, followed by ECG. Ultrasound for pregnant women costs an average Rupees (Rs) 281 per test. But the coefficient of variation (cv) for an ECG is lower (32.29 percent) than that for a urine test and ultrasound (40.48 percent and 39.22 percent, respectively).
- ▲ As for delivery related services, operation theatre (OT) charges are highest on average (Rs.706, cv: 46.15 percent), followed by anaesthetist's fee per delivery (Rs.542, cv:38.78 percent) and labor room charges (Rs.372, cv: 50.01 percent). As with the three diagnostic services discussed above, the cv's for these services all are less than 50 percent.
- ▲ Very few hospitals reported having new-born critical care services. Maternity homes are expected to provide these services, which include provision of incubator facility, radiant warmer, oxygen bag, resuscitation kit, etc. Many hospitals may not have them as one separate unit; others have only an incubator and/or oxygen supply. As Table 15 shows, oxygen supply is provided by 27 hospitals, while only seven reported having incubator facility and comprehensive new-born critical care services. The charge for comprehensive critical care varies from Rs.100 to Rs.1500 per day per baby, with an average of Rs.514 (cv: 104.96 percent). Incubator service per day has an average of Rs.139 (cv: 106.61 percent), while oxygen supply per hour is Rs. 61 (cv: 111 percent).

<sup>22</sup> In fact, the survey sought information on a much longer list of procedures (see Hospitals questionnaire, item 47, Appendix A).

<sup>23</sup> An important methodological issue should be noted here: Usually while comparing charges for medical/diagnostic services across hospitals, it is necessary to be careful about case-mix and severity of patients. In our case, we need not be worried by this consideration because of the nature of services we taken up for analysis.



Table 15: Charges for Various Services (in rupees)

S.No.	Services	Mean (Rs.)	Min.	Max.	Median	coefficient of variation	N
1	Urine test (pregnancy related)	53.41	10	100	50.0	40.08%	44
2	Oxygen per hour	61.41	10	300	30.0	111%	27
3	ECG	71.84	30	150	60.0	32.39%	49
4	X-ray (pregnancy related)	118.13	60	500	100.0	87.58%	16
5	Foetal monitor	124.17	30	500	62.5	103.34%	18
6	Incubator per day	139.29	25	450	100.0	106.61%	7
7	Ultrasound (pregnancy related)	281.48	75	550	250.0	39.22%	27
8	Labor room charges per delivery	372.37	50	750	350.0	50.01%	38
9	Newborn critical care	514.29	100	1500	200.0	104.96%	7
10	Operation theatre per delivery	706.06	50	1500	750.0	46.15%	33
11	Anaesthetist per caesarean delivery	541.67	75	1000	500.0	38.78%	27

### 3.4.2 Charges: "Poor" and "Better-off" Neighborhoods

To better understand the nature of private hospitals market, it is necessary to analyze the variations in charges across areas classified broadly as poor or better-off—more precisely, to examine "whether charges prevailing for a given set of services in poorer areas are lower than those in better-off areas." The survey data allows a preliminary analysis of this issue.

As noted earlier, North Madras is considered a highly underdeveloped area compared to South Madras. North Madras ("poor" neighborhood) is the more densely populated, by persons of lower socio-economic status, whereas South Madras ("better-off" neighborhood) residents are largely of higher socio-economic classes. It should also be noted that all six corporate public limited hospitals discussed earlier are located in South Madras, along with a small number of public hospitals, while North Madras has a larger number of (tertiary) government hospitals.

This analysis considers all the sample hospitals surveyed in these two neighborhoods as representative of private hospitals in the respective markets they serve. A total of 23 hospitals in North Madras (bed size 20.78) and 25 hospitals in South Madras (bed size 20.33) were covered by the survey. The mean charges for various services across these two neighborhoods are shown in Table 16.

The figures show that for four of the maternity related services limited, there is no statistically significant difference in the mean charges for services in poor and better-off neighborhoods. Only for the diagnostic urine test and ECG are charges higher in better-off regions. It is particularly important to note that for services/facilities provided at the time of delivery, there is hardly any difference in charges between the two regions.<sup>24</sup>

Given the prevalence of large public hospitals and the lower socio-economic conditions in North Madras, one might expect lower charges than in better-off South Madras. But it appears not to be so. The lack of difference in charges for these services is perhaps an indication of intense non-price competition among private hospitals in Madras as a whole.

<sup>24</sup> The charges for many other services are not considered in view of lack of response from hospitals.

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**Table 16: Comparison of Mean Values (in Rupees) for Select Services across "Poor" and "Better-off" Neighborhoods**

S.No	Service items	North Madras "poor" neighborhood	South Madras "better-off" neighborhood	Do mean values differ significantly across neighborhoods?
1	Ultrasound (pregnancy related)	210.7 SD*: 132.1 N**: 7	273.0 SD: 48.4 N: 13	No $t = -1.21$ $p = 0.268$
2	Urine test (pregnancy related)	43.7 SD:13.4 N:15	63.4 SD: 21.8 N:16	Yes $t = -3.01$ $p = 0.005$
3	ECG	58.4 SD: 14.9 N:16	74.1 SD: 20.9 N:17	Yes $t = -2.46$ $p = 0.019$
4	Labor room per delivery	350.0 SD: 162.0 N: 9	353.3 SD: 198.6 N: 15	No $t = 0.04$ $p = 0.967$
5	OT per delivery	704.5 SD: 326.7 N: 11	653.8 SD:247.9 N:13	No $t = 0.43$ $p = 0.670$
6	Anesthetist per delivery	536.1 SD: 250.3 N: 9	536.3 SD:145.0 N:11	No $t = 0.00$ $p = 0.99$

\* SD: Standard Deviation \*\*N: Sample size

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## 4. Conclusions

This study has highlighted a number of policy issues which relate to potential strategies to improving the access to and performance of the private hospital market in Madras city, and in other large urban areas in general.

Policymakers are debating several issues about the private hospital sector in the state. Central questions include: (1) Who should govern the private hospital sector? (2) What should be governed and to what extent? and (3) By what process should governing be carried out? These three questions are relevant to designing specific policy measures to improve access to care and performance of the hospital sector. Of the three questions, the first has not yet been resolved. The medical community is against any form of regulation by the government and instead supports what it calls "self-governance." The debate on this issue is outside the scope of this study. But regardless of who governs the private hospital sector, the other two questions will demand considerable study for further policy initiatives. The findings of this study relate to the second question, "what should be governed and to what extent?" Some findings point to specific policy options, others to the need for further studies.

1. No physical standards currently exist for private hospitals. As a result, available data on space utilization (for example) does not help assess their adequacy. It is important to recognize the prevailing practice in space management in private hospitals and make initiatives to improve overall quality of care delivery by them.

2. The study emphasizes the importance of estimating adequacy of health personnel in private hospitals. Assessment is constrained by lack of norms for staff requirements (doctor-nursing ratio, nursing per bed, etc.) within individual hospital units. For example, in some categories of medical staff, the deficiency may be due to lack of adequate number of medical professionals being trained. In other categories (such as nursing), the inadequacy may be due to deliberate policy of the providers to replace professionals with lower-level staff. In a sense, this also related to the larger manpower policy issues at the state level. There is concern now among the policymakers as to whether the number of health professionals should be restricted or increased and, if so, by how much. The government lacks reliable data on the present stock of health professionals in the state. As a result, the government is unable to devise any meaningful policy measure. The study thus highlights the need to undertake a study on the growth, size, and distribution of health professionals in private sector and think further on how far above or below the requirements they are at present and devise policy to achieve appropriate personnel supply.

3. There is constant criticism that a large number of government doctors are often busy practicing in private hospitals during public office hours. While empirical data on this practice is not available, there is very little denial of it from government doctors themselves. This study attempted to establish the dependence of private hospitals on public doctors. Given that public sector physicians are in demand in many private hospitals, it is necessary to design policies to benefit both private and public health sectors. One policy option could be to identify specialties in high demand in the private sector and develop specific measures to moderate their practice. Additional components of this policy could include: (1) asking public sector physicians to share fees with government since he/she is allowed to practice in private hospitals and (2) limiting the number of public sector physicians allowed to practice in private hospitals based on mutually agreed criteria. Another possible but less



realistic option is to ban private practice of public sector physicians; this will be met with intense resistance from the medical community and perhaps groups with influence on policymakers. Such a policy option, if enforced, would achieve one result: Government doctors would not be practice in private premises during their government hours. But, whether that would ensure substantial improvement in the provision of care within government premises during those hours is not automatic.

4. Another important policy issue concerns the payment mechanism prevalent in the hospital market. The current payment system provides an incentive for physicians to over-provide care depending on patients' economic conditions. Therefore, the relevant policy issue is to contain such over-provision. Several physicians expressed their concern over the tendency for providers, motivated by monetary considerations, to refer patients to diagnostic centers and/or higher tertiary hospitals.

One policy resolution is to make such referrals illegal, particularly if the physicians have a financial stake in the referral centers. It is very difficult to implement such a policy, but it is also difficult find a rationale to allow such a practice to continue. Fixing rates for physician services cannot contain costs since it is likely to increase the quantity of services provided. One thing is certain: Payment mechanism is perhaps the most tricky, sensitive, and intractable issue and the networking prevalent amongst themselves and diagnostic centers even more intractable empirically. To address such issues, it is necessary to understand the private sector physician market in order to evaluate various policy options on payment methods, as third party payers are likely to play a significant role in India in the future. More importantly, the state must define its role with regard to financing, provision, regulation, and many others issues. It must also define its commitment to protecting at least the poor since this will affect whether the current practice is to be contained or encouraged. As noted in the introduction, there is no state level and national level policy statement on how the private hospital sector should be promoted and developed. Such policy should guide largely what needs to done and how they should and could be achieved.

5. The study also throws open the question of restricting the growth and distribution of hospitals and beds across various zones in the city. While this may not be possible at present, it should however form a part of the reform debate in future. As part of the strategy, incentives can be given for establishing private hospitals in under-served areas. This should be considered along with other strategies for promoting private hospital sector in the city and the state (see also point 7).

6. Evidence suggests that physicians and hospitals are knowledgeable—through informal networks rather than organized agencies—of each others' charges for comparable services. It is difficult to say to what extent such information influences a provider's pricing policy, but interviews with a number of providers/physicians confirm that they often use such knowledge in fixing their charges. It would be enormously useful for policymakers to have access to this information. For example, such information could be shared with patients/consumers, for use in selection of providers. Perhaps the government, in collaboration with the private hospitals could create a separate hospital information agency for collection of such information, which could then be used to design appropriate policy to promote development of private health sector. Needless to say that such an effort requires confidence building on the part of the government, for the private sector is always suspicious of any initiative by the government. This leads to the following point, a suggestion that relates to the larger issue of the role of state in promoting private health sector—controversial not only in Tamil Nadu but in other states as well.

7. Several independent physicians and hospitals expressed concern over the "intense competition in the market" and how, as a result, they are "not doing well financially." Although not substantiated with hard data, it cannot be discarded as a deliberate attempt by all providers to project such a



negative picture of the hospital market. There is little argument that much of hospital market's performance is driven by the larger politico-economic policy environment, which is beyond stakeholders' reach and influence. But efforts can be made from both within and outside the health care system for better performance in delivering care and in monetary terms. For example, private hospitals could voluntarily initiate steps to develop networking among themselves and develop physical standards by involving various stakeholders in the process. On the other hand, the state could, for example, initiate steps to revive the sick hospitals wherever necessary. In India, there is a long tradition of the state providing a helping hand to small industrial units, particularly when they fall sick. In fact, many providers cited this role of the government in other sectors of the economy and questioned why they have not received such support from the state. The state could perhaps create a separate body—a "state private health sector development agency"—concerned with developmental needs of the private health sector in the state. This Agency should help ensure adequate quality of care in the private hospitals and not act merely as a liaison body between the government and private sector.

# Annex A. Survey of Hospitals, Clinics and Nursing Homes

IIT/BGI/97-98

Questionnaire ID #

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## Survey of Hospitals/Clinics/Nursing Homes

*I am from a Social Science and Environmental Research Group by name "The Blackstone Group of India", which is located in Madras. Presently, we are doing a research survey on private hospitals, in association with the Department of Humanities and Social Sciences, Indian Institute of Technology (Madras). In this connection, we would like to ask you a number of questions regarding your hospital. I will be thankful if you could spare some time to answer these questions. The information you provide will be kept strictly confidential and will be used for the purpose of conducting a research study only.*

### HOSPITAL DETAIL

Name of hospital \_\_\_\_\_

Street Address \_\_\_\_\_

PIN: \_\_\_\_\_ Zone Number \_\_\_\_\_ Division Number \_\_\_\_\_

### PARTICULARS OF RESPONDENT

Name of the respondent \_\_\_\_\_

Designation of the respondent \_\_\_\_\_

Telephone number of respondent \_\_\_\_\_

Key names at facility for possible follow up: \_\_\_\_\_

**INTERVIEWER'S DETAIL**

Interviewer \_\_\_\_\_ code \_\_\_\_\_

Initial contact was: \_\_\_\_\_

- ☐ a) Assisted by a contact    ☐ b) Scheduled by telephone.
- ☐ c) Scheduled in person.    ☐ d) Notified through a letter.
- ☐ e) Unscheduled/unnotified

date of interview \_\_\_\_\_ day \_\_\_\_\_

Time started \_\_\_\_\_ Time completed \_\_\_\_\_

date of 1st follow up \_\_\_\_\_ date of 2nd follow up \_\_\_\_\_

Outcome: (1) Completed/ satisfactory , (2) completed / unsatisfactory (3) Incomplete

Supervisor's Name: \_\_\_\_\_



### General Information

1. Year of Establishment \_\_\_\_\_

2. Number of beds (when established) \_\_\_\_\_

3. Number of beds (as of now) \_\_\_\_\_

4. Which of the following categories best describes your hospital ?

- ☐ a) Private (for profit)
- ☐ b) Private (philanthropic, non-missionary)
- ☐ c) Private-missionary
- ☐ d) any other \_\_\_\_\_

5. If private, state form of ownership

- ☐ (a) Sole proprietorship
- ☐ (b) Partnership
- ☐ (c) Corporate Private Limited
- ☐ (d) Corporate Public Limited
- ☐ (e) Owned directly by employer

6. Do you own this building ☐ 1 yes ☐ 2 No

If no, is it on

- ☐ a) rent ?
- ☐ b) annual lease?
- ☐ c) any other arrangement (mention below briefly)

7. Please indicate whether or not services in the following areas are offered in your hospital. Also mention whether surgery is performed under each of the given areas.

code #	Department / Speciality	Yes (1)	No (2)	Whether surgery is also performed	
				Yes (1)	No (2)
a1	Burns				
a2	Cardiology				
a3	Cancer				
a4	Cosmetology				
a5	Dentistry				
a6	Dermatology				
a7	Diabetology				
a8	ENT				
a9	Endocrinology				
a10	Emergency services				
a11	Family Welfare planning				
a12	General Medicine				
a13	General Surgery				
a14	Gastroenterology				
a15	Geriatrics				
a16	Haematology				
a17	Nephrology				
a18	Neurology				
a19	Neurosurgery				
a20	Neonatology				
a21	Oncology				
a22	Ophthalmology				
a23	Obstetrics & Gynaecology				
a24	Orthopaedic				
a25	Paediatrics				
a26	Pathology				
a27	Physiotherapy				
a28	Psychiatry				
a29	Radiology				

code #	Department / Speciality	Yes (1)	No (2)	Whether surgery is also performed	
				Yes (1)	No (2)
a30	Rhumatology				
a31	STD				
a32	Traumatology				
a33	Tuberculosis				
a34	Urology				
a35	Vascular surgery				
a36					
a37					
a38					



8. Please indicate whether the following facilities are available in your hospitals.

code #	Facilities	Yes (1)	No (2)
b1	Treadmill analysis		
b2	Contact lens clinic		
b3	ECHO cardiography		
b4	Holter Monitor		
b5	X-ray		
b6	Eye testing		
b7	ECG		
b8	Gastroscopy		
b9	Ultra sound		
b10	Allergy test		
b11	Laproscope sterilisation		
b12	Blood Bank		
b13	Endoscopy		
b14	ICCU		
b15	Bio-chemistry lab		
b16	Dental care (extraction, dentures etc)		
b17	Peritoneal Dialysis		
b18	Haemo Dialysis		
b19	Traction		
b20	Pap smear		
b21	Cancer screening		
b22	Foetal monitor		
b23	Hormone test		
b24	Lithotriper		
b25	Bronchoscopy		
b26	Ventilator		
b27	Newborn Resuscitator		
b28	Refrigerator for vaccines		
b29	Ice-liner refrigerator		
b30	Autoclave sterilisation		

code #	Facilities	Yes (1)	No (2)
b31	Immunisation		

### Facilities/infrastructure.

9. How are the wards classified?. Give number of rooms under each category and room charges for the same? (please attach if you have printed list prices. If the format given below is not suitable for your hospital, collect information the way it is provided. Attach separate sheet of paper if necessary. Get ward categories, number of beds in each category, and charges for a bed per day in each category)

Ward/Room Category	Number of beds in each ward	Bed/room charge per day

10. Number of floors in the hospital \_\_\_\_\_ (including ground floor)  
(Give total floor space, all floors included \_\_\_\_\_ sq. feet)

11. How many operating rooms are there in your hospital ? \_\_\_\_\_  
(mention floor levels)

Floor level	Number of Operating rooms
Ground floor	
First floor	
Second floor	
Third floor	
Fourth floor	
Fifth floor	
Sixth floor	



12. Do you have an emergency ward ? ☐ 1 Yes ☐ 2 No
13. Do you have an ICU? ☐ 1 Yes ☐ 2 No
14. Number of beds in ICU \_\_\_\_\_ (if more than one ICU, mention beds ICU-wise)
15. Location of ICU (mention the floor) \_\_\_\_\_
16. What is your principal source of water and quantum of water used per day?

<u>Source</u>		<u>quantum</u>
		(Specify units)
<input type="checkbox"/>	1 Public Water System.....	_____
<input type="checkbox"/>	2 Well with pump.....	_____
<input type="checkbox"/>	3 Metro water supplied thro' tankers	_____
<input type="checkbox"/>	4 Purchased from private supplier.....	_____
<input type="checkbox"/>	5 Other (specify).....	_____

17. Do you have a overhead tank ☐ 1 Yes ☐ 2 No

If yes, what is the capacity of the overhead tank \_\_\_\_\_ (litres/gallons, specify)

18. Do you have Aquaguard? ☐ 1 Yes ☐ 2 No
19. Do you supply hot water for bathing? ☐ 1 Yes ☐ 2 No
20. Do you have a generator for power supply? ☐ 1 Yes ☐ 2 No
21. Does this hospital have an elevator?  
(specify number if more than one is available) ☐ 1 Yes ☐ 2 No
22. Does your hospital have a drainage connection? ☐ 1 Yes ☐ 2 no
23. When did you get the drainage connection (specify year) \_\_\_\_\_
24. Is there a laundry? ☐ 1 Yes ☐ 2 No
25. Does your hospital have space for washing patients' cloths? ☐ 1 Yes ☐ 2 No
26. Does your hospital have play-area for children? ☐ 1 Yes ☐ 2 No
27. Has your hospital been declared baby-friendly by  
the government of Tamil Nadu? ☐ 1 Yes ☐ 2 No
- If yes, when was it declared baby-friendly? (mention year) \_\_\_\_\_
28. Is there a pharmacy within the hospital premises? ☐ 1 Yes ☐ 2 No
29. Does it store breast milk substitutes? ☐ 1 Yes ☐ 2 No

30. How many ambulance vans does your hospital have? \_\_\_\_\_

31. Do you hire ambulances?

☐

1 Yes

☐

2 No

If no, go to question 34

If yes, how many on hire \_\_\_\_\_

32. Who gives you on hire?

33. How much do you pay for hiring ambulances?

.....

.....

.....  
(give details of nature of payment arrangements; whether it is based on per trip, per day basis, monthly, lump sum plus charges per trip, any other arrangement, specify)

34. Do you have any contract with other hospitals (for referral purposes only)

☐

1 Yes

☐

2 No

If No, go to question 35

If yes, mention those referral services and names of hospitals

S.No	Name of hospital	Referral service

35. Do you have any contract with diagnostic centres: ☐ 1 Yes ☐ 2 No

If No, go to question 36

If yes, which of the following services are referred to an outside diagnostic centres (please mention name(s) of referral centres, with address)

S.No	Referral Services	Referral centre (s) and address
a	CT scan	
b	MRI	
c	Treadmill	
d	X-ray	
e	Endoscopy	
f	Laprosopy	
g	Dialysis	
h	Angiogram	
i	Ultrasound	
j	Foetal monitor	



### 36. Hospital personnel: Physician profile

[illegible]

1 Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Saturday 7: Sunday

37. Do you have government doctors serving as consultants?

(If yes, mention only the number of doctors under each specialties) ☐ 1 Yes ☐ 2 No

S.No	Specialty	Number

38. Give a list of hospital staff other than physicians such as nurses, technicians, ayas, social workers.

S.No	staff designation	qualification	number	S.No	staff designation	qualification	Number

**Maternity services:**

39. Does this hospital admit only maternity cases? ☐ 1 Yes ☐ 2 No  
(if yes, go to question 41)

40. If no, do you have separate maternity ward? ☐ 1 Yes ☐ 2 No

If yes, number of beds in the maternity ward \_\_\_\_\_

41. Number of deliveries: (mention exact reference period)

type of delivery	last 1 year	last 1 month	last 7 days
Normal (vaginal)			
Caesaren			
Instrumental (forceps)			
Total			

42. Is your hospital recognised by the government for Family Welfare services?

☐ 1 Yes ☐ 2 No

43. Do you receive any support from the government?

☐ 1 Yes ☐ 2 No

If yes, specify nature of support (grants for construction or improvement of hospital)

44. Do you screen for disablement in newborns for early intervention?

☐ 1 Yes ☐ 2 No



45. Please provide charges for following items under various types of delivery ward-wise.

Type of delivery and Ward Type	Nursing (Rs)	Labour room (Rs)	Anaesthetist (Rs.)	Physician (Rs.)
I. Vaginal normal Ward type				
1				
2				
3				
4				
5				
6				
II. Caesarean Ward Type				
1				
2				
3				
4				
5				
6				
III. Instrumental Ward Type				
1				
2				
3				
4				
5				
6				

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46. Please provide information on the number of procedures performed on the following:

S.No	Procedures	last one year (mention exact reference months)	last one month (mention reference month)
a	tubectomy		
b	hysterectomy		
c	laparoscopy (gynec. )		
d	dilation and curettage		
e.	cholecystectomy		
f.	Prostectomy		
f	Hernia		
g.	Hydrocele		

47. Please provide charges for the following services.

Services (if a services is not provided, please state so)	Rs.
1.X-ray (pregnancy related)	
2.Ultrasound (pregnancy related)	
3.Urine Test (pregnancy related)	
4.ECG	
5.Foetal monitor.	
6.Cervical smear test ..	
7.Laparoscopy (diagnostic)	
8.Incubator charge (per day)	
9.Labour room charges.	
10.Operation theatre charges (for delivery)	
11.Oxygen charges (per hour). (or if unit of charge is different, specify)	
12.I C U room charges (per day)	
13.Anaesthetist (per procedure for delivery)...	
14.Hernia (operation charges)	
15. Hydrocele (operation charges)	
16. Prostectomy (operation charges).	
17. Vaginal Hysterectomy (operation charges)	
18. Newborn critical care.	

**General questions:**

48. Do you have any contract with any private or public sector company for treating their patients?  
(give details of your contracts) mention names of companies if possible, duration of contract, payment  
modes, fee structure if declared, etc)

49. Does your hospital have a published fee schedule for  
room and board charges ☐ 1 Yes ☐ 2 No  
laboratory procedures ☐ 1 Yes ☐ 2 No  
consultations ☐ 1 Yes ☐ 2 No  
any package deal/health scheme? ☐ 1 Yes ☐ 2 No  
(collect details of these schemes)

(collect a copy of these charges if available)

50. Can doctors in this hospital set fee levels by themselves? ☐ 1 Yes ☐ 2 No

\*\*\*\*\*

*Dr Muraleedharan would like to meet you at a later point of time for further  
discussion. He will get in touch with you in this regard for an appointment.*

*Thank You*



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## Annex B. Points for Discussion with Physicians

### POINTS FOR DISCUSSION WITH PHYSICIANS

(used by the Principal Investigator and Researcher)

The focus of discussion should be on employment status and payment system. You may ask her/him to fill in a brief questionnaire if necessary and ask him/her to mail it to you.

#### On his/her employment status

with government: salaried, any other arrangements.

with private hospitals (salaried, any other arrangements)

In hospitals you visit as consultant (or as regular physician), what is the method of payment? (do you charge them directly, do you get paid on the basis of the number of patients you consult, does what you get paid depends upon volume of IP and OP, can you fix your own fees, any basis of sharing fees contracted, if so could you give the basis of sharing?. Any other incentives?

What is more prevalent payment mode and what the usual incentive schemes offered?

What system of payment would you prefer?

What are your views the state of private sector? Is there an intense competition in your area of specialization? How do they try to price their services?. Will banning private practice adversely affect availability of specialists in private sector?.

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## Annex C. Bibliography

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