Chapter: 5

Health Services in Calcutta

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5.1 Introduction

As the Imperial administration expanded in India and sought a more comprehensive hold over the lives and labor of the Indian population, medicine developed as a central agency for extension of control over public life. The authorities depended mostly on their own doctors and their own system of medicine i.e. western medicine. They also established a number of hospitals and dispensaries, and introduced ‘vaccination’ as prevention against some communicable diseases prevalent in the country.

In this chapter, an attempt has been made to briefly analyze the various aspects of Health-Services in colonial Calcutta. Health services are “one of the many factors that influence the health of the population of a country or any geographical area”. Their main function is to ensure that the community it serves derives the maximum benefit from its existence. We will focus on the curative and preventive measures taken by the Imperial government in India against the backdrop of the developments in the contemporary medical system in England. We would also attempt to assess the extent of control these measures were able to achieve over the spread of diseases in the city of Calcutta.

5.2 Medical Services

Indigenous medical systems were in practice when the European traders came to India in the sixteenth and seventeenth centuries. They depended on these systems of treatment. The Imperial authorities in the colonies gradually introduced the western medical system and the indigenous system of medicine was totally neglected.

5.2.1 Indian Medical Service

The Indian Medical Service came into existence in 1600 when The East India Company began to appoint its own medical officers in England in its vessels bound

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for India\(^4\). These surgeons were initially employed for specific voyages but later some of them were stationed in any one of the British settlements on request from responsible Company servants. Gradually this became a practice and the doctors recruited for its standing army increased steadily. By 1749 there were at least 30 doctors employed in different positions in the Company\(^5\). These doctors may have been the same as the apothecaries and barber surgeons who provided medical services in contemporary Britain\(^6\).

The **Bengal Medical Service** was established on 20\(^{th}\) October 1763, through the orders of Fort William\(^7\). All the medical officers in the Bengal Presidency were combined into a regular medical establishment with fixed grades and definite rules for promotion. The establishment comprised of 4 head surgeons, 8 surgeons and 28 surgeon’s mates\(^8\). The doctors were given some privileges, for example in 1764, four head surgeons in Calcutta had the facility of using a ‘dastak’ (a special permit for duty-free trade issued by the chiefs of English Factory) and of the four, and two had a ‘hospital contract’.

The Bengal Medical Service along with similar establishments in Bombay and Madras expanded rapidly over the next forty years during which local Eurasians and Europeans were recruited\(^9\). But the Board of Directors showed great dislike at the rising number of local appointments, which ultimately resulted in temporary suspension of such recruitment\(^10\). Between 1785 and 1787 three medical boards were established in three Presidencies consisting of two or three senior surgeons in each Presidency.


\(^7\) Jaggi, O. P.(1979): *op. cit*; footnote 5; p.27.


In 1788 the surgeons of the Bengal Medical Service were entrusted with dual posts of combatant officers and assistant surgeons. At the time of promotion a surgeon could make a choice as to which post to accept. But this irregularity was avoided when recruitment of surgeons in Bengal Medical Service was based on a professional examination initiated in the late eighteenth century by the medical boards. This aroused dissatisfaction in many quarters even during the second half of the nineteenth century. Ultimately this system was abolished and replaced with posts of the Director-General in each Presidency assisted by Inspector Generals.

Until the middle of the nineteenth century, professional skill or medical experience were not the only criteria for career advancement and for employment as a surgeon. The appointment process was complicated and expensive leading to opportunities for dishonest rank holders to indulge in many irregularities.

A clear hierarchy in the medical profession was established with the expansion of the medical services. Although an examination board was appointed for the Company in 1774 and some regular examinations were instituted for recruitment, the first clear statement of regulations for admission was made in 1822. Many new regulations were thereafter added to the admission procedure.

In the early nineteenth century, the civil surgeon had to attend to a few government servants and had hardly any medical duties to perform. He also held subsidiary post like that of a postmaster, registrar of deeds, or subordinate judge. Private medical practice could be carried on only in Calcutta and in few mofussil towns where non-official Europeans and affluent native gentlemen resided.

The impact of the changing pattern of medical education in Britain had a clear reflection on the quality of doctors in the Indian Medical Service. Before the nineteenth century only 6 per cent of the doctors attended a medical school for some time. From 1800 to 1860 most of the recruits had a diploma of the Royal College of Surgeons in London and nearly 17 percent had a degree from Edinburgh. But after 1860, at least 33 percent of all the members recruited had qualified from different
medical schools in London, 30 percent from Scottish Universities and 17 percent from Indian Medical Institutions.

Even at the beginning of the twentieth century, the Indian Medical Service was attractive to many Europeans. But in 1896 the separate services of Bengal, Madras and Bombay Presidencies were abolished in favor on one central Indian Medical Service.

The conditions changed in the second half of the nineteenth century. The Medical Act of 1858 in Britain prepared the way for common recruitment, training and registration of doctors. The civil surgeons in colonial India had no commercial jobs to perform but had more professional responsibilities than those of their military counterparts. Appointment in the Indian Medical Service, however, made it obligatory for every doctor to serve in the field for at least two years. In spite of government efforts to make military service more attractive, the civil surgeons certainly had an advantage over their military counterparts. The very nature of the Indian Medical Service was more military than civil. They rarely bothered about any sanitary or public health reform for the Indian public.

In 1855 admission to the Indian Medical Service was for the first time thrown open to every natural born subject of the Queen. In the first competitive examination held in January 1855, Sooryacoomer Goodeve Chuckerbutty, a Bengali student, topped the list and served as a medical officer in Bengal from 1850 to 1854. Later, he became a Professor in the Calcutta Medical College. After 1855 many Indians entered the Service regularly. From 1865 a full course on practical instructions at the Army Medical School, became compulsory.

By the third quarter of the nineteenth century Indian Medical Service had most of the characteristics of a formal bureaucracy. Although appointments were open to all on merit, in practice Indians could hardly get an opportunity to enter the service as the entrance examinations were held only in London. The recruited ones also felt

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12 Op. cit; footnote 8; p.34.
neglected among the Europeans and many had to resign after a short career. The scope for promotion was also not bright, though for the Europeans, promotion strictly was on qualification and length of service.

There were many disparities in the Indian medical services. In most cases doctors in charge of a native regiment had smaller salaries. A European medical officer was in almost all cases, the chief officer or the superintendent in charge of jail, while the Indians, in most cases ended up their careers as sub-assistant surgeons or assistant surgeons and, suffered great disparity in rank, prestige and salary compared with their European counterparts, though in many cases they were equally qualified and trained. They were also answerable to the European Civil Surgeons.

Under the Morley-Minto Reforms of 1907, more Indians were absorbed in the management of the Indian Government and gradually the health departments of the Provinces transferred powers and responsibilities to the local self-governments, where, many Indians participated\(^\text{13}\). This change made the service less attractive to many British doctors who had little interest to work under Indians. Moreover, by 1918-1919, the employment prospects in Britain improved and recruitment of doctors from Britain declined with the improvement of health insurance schemes in that country. The threatened loss of some of the key positions under the reforms of 1919 was also a reason for the relatively lower recruitment of Europeans after World War I.

5.2.2 Subordinate Medical Service

Besides the Indian Medical Service, there were some other subordinate medical services in colonial India\(^\text{14}\). Most of the Indians faced severe problems in securing any appointment to the commissioned Indian Medical Services. They were given local and inferior appointments and were posted in some smaller civil stations and were never recognized as regular collectorates. Those who got into the regiments were posted in various irregular forces. The low pay scales and poor prospects made the service unpopular among the Indian doctors. The Europeans rarely entered into this service.

\(^{13}\) *Op.cit.* footnote 5; p.44.

\(^{14}\) *Op. cit.* footnote 5; p.56.
Another sub-ordinate medical service in colonial India was the appointment of ‘Indian assistants’ to help the British doctors attached to the Company. They were mere helpers, trained locally, to act as dressers under the direct supervision of the medical officers. These dressers gradually became medical subordinates by undergoing formal education and medical training. They were popularly known as ‘black doctors’\(^{15}\). They were low paid doctors employed at civil stations and at regiments. Indian medical attendants were appointed to each corps and regiment of the standing army of the East India Company. In the Bengal Master Rolls (1718 – 1771) the names of 17 black doctors were found working with the Royal Army. At the end of 1785 a native doctor was attached to each battalion of native infantry on a monthly salary of Rs. 31. In 1788, Indian dressers were recruited for each Indian cavalry regiment on Rs.35 a month plus some allowances. These native doctors or the dressers were considered to be a useful class of servants and were employed to look after the native regiments only. They did not have any access to European patients. But here also native Europeans and Eurasians were given some extra privileges in terms of position, promotion and pay\(^{16}\). Their first appointments were as apothecaries and as assistant surgeons, while the native Indians started as dressers, then became hospital assistants and then were promoted as sub-assistant surgeons.

The ‘Military Sub-Medical Department’ was established in the first decade of the nineteenth century. In 1812 the Governor-General-in-Council approved a proposal of the Bengal Medical Board to start medical instructions for boys from the Upper and Lower Orphan schools and the free schools. This was to make them competent enough to serve as *compounders* and dressers and ultimately as apothecaries and sub-assistant surgeons in the medical department or the Presidency. After the successful completion of their training, they were posted in different native and European corps and after 2–3 years’ service, they were promoted as the sub-assistant surgeons and apothecaries in the Native or European corps, and some with the medical depots, general field hospitals as the circumstances required. The military sub-assistant surgeons were, however, recruited from among the Europeans and Eurasians. They

\(^{15}\) *Op. cit*; footnote 4; p. 102.

received a four-year medical instruction with a monthly allowance. On completing their final examination they were recognized as gazzetted fourth-class warrant officers. From 1894 they were designated as military assistant surgeons and from 1914 they were entitled for a hike in their emoluments. These military assistant surgeons served under the Royal Army Medical Corps officers. They had a tough round-the-clock duty roster with little independent charges. They had to look after the moving troops and were answerable to the Indian Medical Service officers for their work in a station hospital. Sometimes military assistant surgeons were given civil posts but in most cases they were reverted to military duties. In recognition of their useful service rendered during World War I, the word 'subordinate' was dropped from the Subordinate Medical Department and in 1918, it came to be known as Indian Medical Department.

With the introduction of the Medical Degrees Act in 1916, all military assistant surgeons required a medical qualification registered in India. The students were required to pass the licentiate examination either of the State Medical Faculty, Bengal; the College of Physicians and Surgeons, Bombay; or, the Board of Examiners, Madras.

The foregoing discussion makes it clear that Indians in several of the medical services were a deprived lot. Throughout the nineteenth century, service conditions and pay scales of these medical professionals were inadequate. Lack of promotional scope, poor service condition and low remuneration of the Indian doctors in government services forced them to look for other sources and ways from where earnings could be enhanced. Dissatisfied and demoralized, many Indian doctors had to flee medical services on some pretext or other. Most of the native Indian doctors had to enter service on bonds and thus could not hope for an increment. Their salaries remained unchanged for years. All these led to steady decrease in the supply of foreign educated native Indian doctors and in their absence locally trained Indians were absorbed.
5.3 Hospitals and Dispensaries

Simultaneous to the introduction of the Indian Medical Services and Health Departments, the colonial authorities tried to have an efficient hospital and dispensary network spread all over the country to treat the army recruits and European nationals stationed in different parts of the country. In colonial India this network was a "cultural-technical diffusion from the west".

Hospitals in Europe were set up primarily as charity institutions for poor and weaker sections of the society. These were considered as 'alms houses'. The only function of such institutions was to take care of the sick and the poor. They were mere shelters for the socially unfit. Their origins can be traced to the late eleventh century. The earliest hospitals were set up by religious institutions or sometimes by merchant guilds and were concerned mainly with the care of the destitute.

Modern hospitals in England were not set up until the seventeenth century and were gradually re-oriented from just being centers for medical care and treatment to institutions that were supposed to provide a comprehensive system of preventive and curative medicine and rehabilitation services. Their main function was to promote the health of the community that they served. They were gradually made an integral part of the medical organization of a society and served as centers for the training of health workers.

5.3.1 Classification of Hospitals and Dispensaries in British India

In British India hospitals and dispensaries were divided into six classes:

Class I - State Public Hospitals and Dispensaries;
Class II- State Special Hospitals and Dispensaries;

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18 Ibid.
22 Ibid; p.12
23 Statistics of British India, Public Health; Department of Statistics, India; Part 5; Calcutta: Superintendent Government Printing, India.
a) Police;
b) Forest and Surveys;
c) Canals;
d) Others.

Class III- Local Fund Hospitals and Dispensaries;
Class IV- Private Aided Hospitals and Dispensaries;
Class V- Private Non-aided Hospitals and Dispensaries;
Class VI- Railway Hospitals and Dispensaries.

- The 'State Public' and 'State Special' Hospitals and Dispensaries included all institutions maintained from Provincial Funds and were managed by the Government. Hospitals and dispensaries rated as Class I were open to all, while those rated as Class II served only specific sections of the public indicated above.

- The 'Local Fund' Hospitals and Dispensaries were those whose management was vested with the local boards or municipalities. They could be partly aided by private subscriptions or receive assistance from Government in the shape of part of the salary of the medical officer and grants for medicine.

- The 'Private Aided' hospitals and dispensaries included institutions almost entirely supported by private subscriptions or guarantees and some aid from Government or local funds.

- The 'Private Non-aided' class comprised those institutions maintained entirely at the cost of private individuals or associations.

- The 'Railway' comprised of all railway hospitals and dispensaries, maintained by state railways and other railways.
Special arrangements, outside this system, were made for the standing army in colonial India. An Indian Army Circular of 1885 classified the military hospitals as follows:

1. Station Hospitals for British troops, whether dieted or non-dieted;
2. Station Hospitals for the soldiers’ wives and children and for British troops;
3. Regimental Hospitals for Native troops, including detachments, garrisons, outposts, etc.;
4. Followers’ Hospitals for regimental or departmental followers;
5. General Hospitals for British and Native troops and for followers, at the base of operations when troops were employed on active service;
6. Field hospitals for the British and Native troops, and for followers when troops were employed on active service.

5.3.2 The Initial Phase in the Growth of Hospitals and Dispensaries in Imperial England and Colonial Calcutta

Until the 1830s there were very few hospitals and dispensaries for the general public and the army in India. It was only in the early 1840s that public hospitals were set up in district headquarters. The main reason being the fact that, even in England, there were very few institutions that provided care for the sick before the eighteenth century. Hospitals and dispensaries were rare and few. They were invariably set up for royal families. The growth of the major hospitals and dispensaries for the general public in Britain started in the later part of the eighteenth century. The provision of hospital services before the National Health Service (NHS) was instituted was also geographically unequal in England. Most hospitals were concentrated in London.

The first hospital to open in England was St. Thomas Hospital that was established in 1106. It was destroyed in 1212 by fire and then rebuilt at a new site near London Bridge. After 1553 it was operated as a municipal hospital. The next important hospital to have been established was St. Bartholomew’s Hospital, founded in 1123.

25 Powell, Martin (1902): “The Geography of English Hospital Provision in the 1930s: The Historical Geography of Heterodoxy”; Journal of Historical Geography; Vol.18; No. 3; pp.307-316.
By the end of the sixteenth century there were 5 Royal or Chartered Hospitals in London\textsuperscript{27}. In 1700 there were less than a dozen hospitals in England of which half were in London. By mid eighteenth century there were 11 hospitals in London\textsuperscript{28}.

Special hospitals did not develop until the early part of the nineteenth century. One of the first of the Special Hospitals was the Royal Chest Hospital founded in London in 1814. Later in the century, voluntary hospitals for children and women were opened\textsuperscript{29}. During the first half of the nineteenth century, there was a deficiency of hospital beds throughout the country and treatment, both medical and surgical was, unsatisfactory. Ignorant doctors and untrained nurses made the early nineteenth century hospital, with its sepsis and its dirt, a highly dangerous place for a patient with a serious illness.

The first asylum for the pauper lunatics was established in 1808\textsuperscript{30}. The first Fever Hospitals in England were established in Norman times for the treatment of leprosy, but, as leprosy declined, some were used for patients suffering from other diseases of an infectious type. The Fever Hospital of London was established in 1802 with the support of the Parishes. Apart from the London Fever Hospital, there was at that time no special accommodation for persons suffering from other infectious diseases. Under the provisions of the Metropolitan Poor Act, 1867, the Metropolitan Asylums Board was created and this body slowly began the creation of a Fever Hospital System for London.

The \textbf{first hospital in Bengal} was opened in early 1708 as indicated in the accounts of the ‘Early Annals of the English in Bengal’. It was mainly meant for the soldiers and

\textsuperscript{27} St. Bartholomew’s, St. Thomas’s, Bethlem, the Bridewell and Christ’s.

\textsuperscript{28} These included the Westminster (1720), Guy’s (1724), St. George’s (1733), the London (1740), and the Middlesex (1745). The first specialized hospital was the London Smallpox Hospital, founded in 1746. The Addenbrooke’s Hospital in Cambridge was built in 1766.

\textsuperscript{29} The Voluntary Hospitals were secular organizations supported by charity and in the beginning their purpose was to continue the work of the Church by caring for the sick and needy. However, London began to restrict admissions to short term cases. This practice was soon followed by other hospitals, and it became necessary to find other accommodation for the patients excluded. They comprised the destitute sick, the mentally ill, the infectious, sick children and pregnant women.

The hospitals for children were the Liverpool Infirmary for Children founded in 1851; the Hospital for the Sick Children, London, 1852; the Jenny Lind Hospital for Children at Norwich in 1854; and the Birmingham Children’s Hospital in 1862.

seamen of the East India Company. Other Company servants could also avail themselves of its service. This hospital, within the Fort William precinct was ruined during the battle between the Company and the Nawab of Bengal, Siraj-ud-Daulah, in 1757.

The second hospital in Bengal Presidency was a temporary building erected inside the old Fort after the recovery of Calcutta by the Company. It was perhaps a make shift hospital, carelessly managed with little space and free and open air. As a temporary measure, in October 1762, the Council agreed to build another hospital near Surman’s gardens, i.e. Kidderpore. When the old fort was converted into a customhouse, it became absolutely necessary to build a new hospital. Therefore, a third hospital, which came to be known as the Presidency General Hospital, was built in 1769.\(^{31}\)

All these three hospitals were primarily intended for the Company’s soldiers and sailors, but they also admitted Europeans of all classes and status.\(^{32}\) The hospital was subsequently enlarged and surrounded by a wall, which afforded ample accommodation in separate buildings for patients and for the medical officers and establishments attached to the institution. This was in fact the first hospital where the construction, repair and maintenance cost was entirely borne by the colonial government.

In 1792 the Company decided to open a hospital for the native poor in Bengal. Subsequently in 1792-93 a hospital was erected in a house on the Chitpore-Road. Both Europeans and Indians controlled it. The Presidency General Hospital was then exclusively meant for the Europeans. The native poor now flocked to the hospital meant for them. The popularity of the native hospital prompted the government to open another of its kind in 1794 at Dharmatola, which later became the Medical College Hospital in 1853.

A Lunatic Asylum was established in 1787. It was not managed properly and hence the Calcutta Medical Board decided in the same year to establish a full-fledged lunatic


\(^{32}\) Op. cit; footnote 5; p.87.
asylum for the Company servants and sepoys. Finally, in 1795 a decision was taken to open such a hospital at Monghyr for the insane Company servants and sepoys.

### 5.3.3 Modern Hospitals in Nineteenth Century Calcutta

The medical network of the Colonial government in Bengal was well ingrained by the beginning of the nineteenth century after the establishment of various medical departments, health services and many hospitals and dispensaries. A rapid development of hospital and dispensary services in the city of Calcutta followed. In 1825, two branch dispensaries were opened and attached to the native hospital. The Chitpur Road Hospital catered to a large number of patients. Therefore, in 1838, a small clinical hospital with 30 beds and an outpatient dispensary was opened to provide clinical instruction to the students of the new college. Lord Auckland was himself involved in opening the hospital. Many native gentlemen came forward to help this college-hospital. Babu Mutty Lal Seal donated a large piece of land for the construction of a hospital for the poor attached to the college. The governor-general, Lord Dalhousie, laid the foundation stone of the Medical College Hospital in 1848, and it was completed in 1853. It had 500 beds in 24 wards, one being reserved for women and children. This hospital admitted both European and native patients though special arrangements were made for the convenience of the European patients. The old Eye Infirmary and Lying-in Hospital were also absorbed in this hospital. In 1876 the construction of new wards for alcoholic cases, obstetric cases and a nurses’ quarter were also sanctioned. In 1886 a children’s ward was opened with facilities for both Indian and European children. In 1888 a steam laundry was installed to provide germ free clothes for all hospital activities. The Hospital, however, did not have a surgical unit. It was in 1899, at the instance of Principal G. Bomford and Surgeon Richard Havelock Charles, that the building of a modern surgical hospital, named after the Prince of Wales was opened. This building, constructed at the cost of Rupees 10 lakhs, had 88 beds and two sections.

The Justice of Peace for Calcutta opened the Campbell Hospital in Sealdah in 1867. It was transferred to the government as a hospital attached to the Campbell Medical School. The hospital was entirely rebuilt in 1908-10 and was modernized on the lines
of Calcutta Medical College Hospital. A year later, the Ezra Hospital was opened though its indoor wards started only in 1888.

The Eye Infirmary, which was established in 1824 and later absorbed in the Medical College Hospital in the 1850s, was situated in Halliday-Street until 1890. It was removed in that year to the basement of the Medical College Hospital. In 1891, a separate Eye Hospital was built. A native gentleman, Shama Charan Law, contributed a large sum for this hospital. This had 57 beds for indoor patients.

In 1876 the plans and estimates for the Chooney Lal Seal’s Dispensary, which was completed and opened in 1880, were also approved. This Dispensary was extensively used as Cholera ward when cholera broke out in 1893. A new outdoor dispensary was completed and opened in 1898.

A year later, in 1881, the Eden Hospital was opened. In 1882 it had 83 indoor patients of whom 42 were Indians and the rest were Europeans who were given better facilities.

The emergencies of the ‘Sepoy Mutiny’ in 1857 compelled the Government to employ three female nurses at the Allahabad Military Hospital. The success of their performance led to the establishment of Nurses’ Training Institution in Calcutta for which the Government sanctioned a capital grant of Rs. 20,000 in 1876 for the construction of a building near the present Presidency General Hospital. Trained nurses were gradually employed in all the city hospitals. In the early twentieth century the Calcutta Hospital Nurses’ Institution undertook the recruitment, training and placement of the entire nursing staff to different hospitals in Calcutta.

In 1897 the Sambhu Nath Pandit hospital at Bhowanipur was opened. This hospital was built by contributions from the Government, the Corporation of Calcutta, and, from the funds of the old Sambhu Nath Pandit outdoor dispensary, which was absorbed into the new hospital.
The Calcutta School of Tropical Medicine was founded in 1914 based on the lines of London School of Tropical Medicine that had been established in London in 1899. The Europeans looked upon the tropics as a terrible place. The deaths and suffering of the white people from peculiar tropical diseases were matters of grave concern for the colonial authorities. In 1916 the Carmichael Hospital for Tropical Diseases was also established.

The Lying-in Hospital, which was later absorbed in the Medical College Hospital, was constructed in 1840 with an outpatient dispensary and a training class for dais/native midwives.

It was not until the beginning of the nineteenth century that hospitals for the general population were established in some of the mofussil towns.

### 5.3.4 Dispensaries in Colonial Calcutta

The establishment of charitable dispensaries from the 1830s was one of the earliest attempts to provide western medical care for the Indian people. Dispensaries became local centers for vaccination against smallpox and for conveying western ideas about sanitation and hygiene, and agencies for 'local sanitary amendments such as the digging of tanks and wells, fencing them off, and filling up holes' [33]. This led to the opening up of dispensaries in different parts of Bengal as well as in Calcutta. Many of these dispensaries owed their existence to Indian philanthropists, who provided the money for the building of dispensary houses and also a monthly sum for their maintenance. By the 1860s, the contribution from these philanthropists started declining. Hence, in some cases the government provided them with 'native doctors' and medicines. Sometimes they were helped by commercial organizations like, the Bengal Coal Company, or by subscriptions from Europeans. However, from 1870, as an attempt to reduce public expenditure, the colonial administration sought to distance itself from the running of dispensaries, which it felt should rely increasingly on local funds. However, the total number of such institutions increased considerably in the decades after 1870.

One notable area in which the dispensaries failed was in the treatment and vaccination of women. In 1871, only 18 per cent of those attending dispensaries in Bengal as in-patients or out patients were women. From the 1880s, however, there were attempts to make dispensaries more acceptable to Indian women who were inhibited because of observance of 'purdah'.

### 5.3.5 Growth and Availability of Hospital Services in Early Twentieth Century Calcutta

In the beginning of the twentieth century, nearly 14-21 per cent of the total hospitals and dispensaries in British India were located in Bengal and only 0.50 per cent was in Calcutta [See Table 5.1]. The statistical information also shows a decline in the number of hospitals and dispensaries in Bengal from 1904 to 1920. This decline was because sometimes dispensaries were merged with hospitals or were closed. The city of Calcutta also shows such a variation in the number of hospitals and dispensaries during the early parts of the twentieth century.

The distribution of hospitals and dispensaries, as shown in Table 5.1 indicates that only 2-4 percent of the total hospitals and dispensaries of Bengal were located in Calcutta city and 97 percent were located at various other locations of Bengal Province.

Map 5.1 shows the location of the major hospitals and dispensaries in Calcutta during the early twentieth century.
Map: 5.1 Location of Hospitals and Dispensaries in Calcutta Early Twentieth Century
Table: 5.1  
Distribution of Hospitals and Dispensaries  
1902 - 1920 (in percentage) 

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<td>15.46</td>
<td>0.47</td>
<td>100</td>
<td>3.04</td>
</tr>
<tr>
<td>1918</td>
<td>100</td>
<td>15.74</td>
<td>0.47</td>
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<td>0.48</td>
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<tr>
<td>1920</td>
<td>100</td>
<td>16.21</td>
<td>0.47</td>
<td>100</td>
<td>2.89</td>
</tr>
</tbody>
</table>

Source: Compiled from Statistics of British India

Figure: 5.1  
Distribution of Different Categories of Hospitals and Dispensaries in Calcutta

From Figure 5.1 it is clear that nearly 80 per cent of the hospitals and dispensaries in Calcutta belonged to Category I, III, and IV i.e. they were State Public, Local Funded,
and Private Aided hospitals and dispensaries. The remaining 20 percent were State Special, Railways and Private Non-Aided hospitals and dispensaries.

For proper treatment, availability of beds for patients is of great importance. Figure 5.2 shows the percentage distribution of beds available in different categories of hospitals and dispensaries in Calcutta. It is evident that the largest numbers of beds were available in category I, III, and IV. Nearly 9 to 12 percent of the beds were available in category II and VI while category V, i.e. the non-aided private hospitals and dispensaries did not have any beds until 1914. Thereafter, some beds were available for indoor patients.

**Figure: 5.2**

*Availability of Beds in Different Hospitals and Dispensaries in Calcutta 1902-1920*

Figure 5.3 shows that nearly 60 to 70 percent of the beds available in these hospitals and dispensaries were for the male population while only 30 to 40 percent were for female population of the city.
Figure: 5.3

Sex Wise Distribution Of Beds In Different Hospitals And Dispensaries In Calcutta

Table: 5.2 Availability of Hospitals and Dispensaries To the Population of Calcutta

<table>
<thead>
<tr>
<th>Year</th>
<th>Population per Hosp./Disp</th>
<th>Population per Bed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1901</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>1902</td>
<td>50430</td>
<td>485</td>
</tr>
<tr>
<td>1903</td>
<td>50908</td>
<td>483</td>
</tr>
<tr>
<td>1904</td>
<td>54244</td>
<td>491</td>
</tr>
<tr>
<td>1905</td>
<td>54762</td>
<td>494</td>
</tr>
<tr>
<td>1906</td>
<td>55279</td>
<td>569</td>
</tr>
<tr>
<td>1907</td>
<td>52872</td>
<td>573</td>
</tr>
<tr>
<td>1908</td>
<td>53374</td>
<td>618</td>
</tr>
<tr>
<td>1909</td>
<td>53878</td>
<td>535</td>
</tr>
<tr>
<td>1910</td>
<td>54392</td>
<td>534</td>
</tr>
<tr>
<td>1911</td>
<td>54911</td>
<td>513</td>
</tr>
<tr>
<td>1912</td>
<td>70125</td>
<td>577</td>
</tr>
<tr>
<td>1913</td>
<td>70697</td>
<td>558</td>
</tr>
<tr>
<td>1914</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>1915</td>
<td>56736</td>
<td>503</td>
</tr>
<tr>
<td>1916</td>
<td>49401</td>
<td>468</td>
</tr>
<tr>
<td>1917</td>
<td>49805</td>
<td>471</td>
</tr>
<tr>
<td>1918</td>
<td>50215</td>
<td>463</td>
</tr>
<tr>
<td>1919</td>
<td>48429</td>
<td>467</td>
</tr>
<tr>
<td>1920</td>
<td>48826</td>
<td>450</td>
</tr>
</tbody>
</table>

In Table 5.2, the availability of hospitals and dispensaries and of hospital beds in them is calculated. It is clear that between 1902 and 1910, one hospital or dispensary catered to nearly 50 thousand to 54 thousand population of the city while in 1913 one hospital or dispensary catered to nearly 71 thousand population. But the availability per thousand populations began to increase from 1915 because there was a
considerable increase in the number of hospitals and dispensaries in the city between 1915 and 1920. The availability of hospital beds was very limited and, on an average, only 1 bed was available per 500 to 600 people in the city.

Table: 5.3 Availability of Beds to Patients Treated
In Calcutta

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Number of Patients/Bed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1902</td>
<td>119</td>
</tr>
<tr>
<td>1903</td>
<td>116</td>
</tr>
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<td>1904</td>
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<td>1906</td>
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<td>1908</td>
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<td>1909</td>
<td>141</td>
</tr>
<tr>
<td>1910</td>
<td>144</td>
</tr>
<tr>
<td>1911</td>
<td>135</td>
</tr>
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<td>1912</td>
<td>148</td>
</tr>
<tr>
<td>1913</td>
<td>144</td>
</tr>
<tr>
<td>1914</td>
<td>N.A.</td>
</tr>
<tr>
<td>1915</td>
<td>150</td>
</tr>
<tr>
<td>1916</td>
<td>142</td>
</tr>
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<td>1917</td>
<td>154</td>
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<tr>
<td>1918</td>
<td>149</td>
</tr>
<tr>
<td>1919</td>
<td>159</td>
</tr>
<tr>
<td>1920</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

If we consider the availability of beds to the total patients treated in these hospitals and dispensaries in early twentieth century, it is clear from Table 5.3 that the ratio was 1 bed per 119 patients in 1902 (plague epidemic year) with a slight fall in the following few years but an increase in the ratio is observed since 1907 with a maximum of 159 patients per bed in 1919 (influenza epidemic year). Although there has been a rapid increase in the number of beds in these hospitals and dispensaries, the increase the number of patients treated in these hospitals and dispensaries was much higher than the increase in the number of beds.

It is also important to see the types of patients treated in the hospitals and dispensaries in colonial Calcutta.
From Figure 5.4 it is clear that during the period under study nearly 90 percent of the patients treated in these hospitals and dispensaries were outdoor patients and only 10 percent were indoor patients.

Of the different categories of hospitals and dispensaries in Calcutta, more than 90 percent of the Indoor patients were treated in Category I, III, and IV while only 7 to 8 percent were treated in Category II and VI. The private non-aided hospitals and dispensaries admitted indoor patients only since 1915 and had a share of only 2.16 to 2.78 percent of the total indoor patients treated in different categories of hospitals and dispensaries.
Among the outdoor patients treated in different categories of hospitals and dispensaries, we find that the contribution of category I, III and IV is the maximum i.e. more than 85 percent of the total outdoor patients were treated in these hospitals while 10 to 15 percent were treated in category II, VI and V.

**Figure: 5.6**

Diseases of Patients Treated in Category II and VI Hospitals and Dispensaries in Calcutta
Diseases of Patients Treated in Category I, III, IV Hospitals and Dispensaries in Calcutta

Diseases of Patients Treated in Category V Hospital and Dispensary in Calcutta
From the statistical data available, it is clear that most of the patients treated suffered from “other diseases” which did not include malaria, cholera, dysentery/diarrhea, plague, smallpox, tuberculosis, and other diseases that are associated with bad environmental conditions. “Other diseases” treated in these hospitals included venereal and skin diseases.

5.4 Vaccination

The introduction of ‘inoculation’ and ‘vaccination’ as a preventive measure against some diseases such as cholera, plague and smallpox, is considered as one of the most important steps taken by the British government in India in the field of health management. Inoculation against smallpox has been practiced in India and China since the ancient times. It was introduced in the British Isles in 1721 and appears to have been employed fairly extensively until the eighteenth century.

Edward Jenner had discovered vaccination against smallpox in 1794 but it was only in 1802, that the Parliamentary Committee in England approved it. In 1840, the practice of traditional inoculation was prohibited and was replaced by vaccination that was made compulsory and obligatory in England in 1853.

The vaccination against smallpox was introduced in India in 1802, the same time as in England. But due to an insufficient supply of both lymph and vaccinators, and a poor public health service organization, the incidence of the disease actually increased during the twentieth century.

The introduction of vaccination encouraged the British to regard smallpox as a preventable disease. However, despite its indisputable benefits, the vaccination was neither compulsorily given nor did it have general acceptance. One reason for this was the attitude of the colonial administration itself, especially in terms of the carrying costs. The measures that were recommended required a huge expenditure.

The British rulers were neither inclined nor compelled to spend the required sum. Vaccination also faced the challenge of a rival prophylactic practice in inoculation and a rival agency in the indigenous variolators. Through a combination of these factors, it took a hundred years for the vaccination to become an effective form of mass prophylaxis in India, and a further seventy years before the dreaded disease was finally eradicated.

With the rapid adoption of vaccination after 1802, Europeans became less vulnerable to smallpox than other diseases. Among them, most of the victims were 'poor' Europeans, especially soldiers and sailors. Wealthier Europeans were protected not only by vaccination, but also by the spaciousness of their houses and gardens and by the absence of close contact with Indians. Among the Indians, religion, social customs and cultural practices were singled out as the main obstruction for the slow progress of the vaccination. But these were only some of the inhibiting factors.

There were many technical difficulties that stood in the way. First of all, there was the problem of supply. Cowpox was rare, possibly unknown in the country, and until the 1890s much of the vaccine was imported from Britain. Vaccine crusts or sealed tubes of lymph were sent by sea or brought over-land from Britain. The lymph was often inert by the time it came to be used. Many a times, shipwrecks caused heavy losses of lymph.

The first Vaccination reached India in June 1802 through a relay of children vaccinated from arm to arm from Baghdad to Bombay. Once formulated, the vaccine was maintained (as in Britain) by the arm-to-arm method. But, here too there were difficulties. For most Hindus this process was ritually very polluting, especially since low-caste or untouchable children were usually the only vaccinates. The higher caste parents took great trouble to ensure that their children were not used in this way. Substitution of calf-lymph created problems of its own. Many Hindus believed that taking lymph from calves caused unacceptable suffering to the animals. Opposition

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39 Arnold, David, ed. (1989): Imperial Medicine and Indigenous Societies; Delhi: Oxford University Press; p.46
40 Op.cit; footnote 40; p.54.
to the practice was particularly strong in western India in the 1870s and 1880s. Some municipalities refused to grant funds for the purpose and individual contractors were subjected to such pressure that they declined to supply heifers for vaccination purposes. With time, however, opposition died and many Indians preferred the use of calf vaccine to the old arm-to-arm method. There was some revival of opposition during the non-co-operation movement in the early 1920s.

Climate also played an important role in the delay of vaccination in India. During the wet and humid monsoon months, the vaccines were ineffective. In northern and eastern India, the ‘vaccination season’ was, therefore, confined to the cooler and drier months between September and March.

Vaccination was disliked for other reasons too. It was primarily aimed for infants who were under one year of age. Many mothers felt that these children were too young for such an operation. The process also involved exposing girls of post-pubertal age to the touch of a male vaccinator.

One of the greatest objections to vaccination was its secularity. There was no dietary or ritual preparation as in variolation, no invocation of Sitala, no priestly activities to provide reassurance during and after the operation. Vaccination was said to be a deliberate attempt to violate caste and religion. It was feared like a new taxation or forced labor. One of the commonest beliefs was that “the British were searching for a child with white blood or milk in his veins. This would be the savior, who would drive out the foreigners unless first caught and destroyed”\textsuperscript{41}.

\textbf{5.4.1 Vaccination Policies in India}

The British at first gave little thought to the need for a permanent vaccination agency. It was assumed that once the practice became popular, the Indians would take it up themselves at minimal cost. In Bombay however, a more ambitious vaccination programme was developed. Under the direction of the Governor, Lord Elphinstone, a scheme was devised in 1827 to carry vaccination to the rural population. This system was said to have two merits. Firstly, it brought vaccination to the doors of the

\textsuperscript{41} Op. cit, footnote 40; p.57.
common people, and, secondly, it ensured the examination by the European Medical Officers. But the scheme also had its limitations. There were frequent reports of vaccinators submitting false returns, exaggerating the number of vaccinations actually performed or were illiterate to fill in the forms correctly.

The initial moves towards legislative action by the British government against the slow progress of vaccination, the high level of mortality and the persistence of variolation were:

1. Ban on variolation in Calcutta in 1804 by Lord Wellesley. The ban, however, proved ineffective and was reinforced in 1865, and extended to surrounding villages in 1866.

2. Inclusion of the vaccination among the duties of the Sanitary Departments in Madras and Bombay Presidencies, Central, Berar, Burma and Oudh Provinces in 1875.

3. Enforcement of the “Vaccination Act” in Bombay in 1877 and in Karachi in 1879. The Government of Bombay finally passed its own Act that made vaccination compulsory within the city of Bombay for all infants less than 6 months of age and for all children less than 14 years of age.

4. Compulsory vaccination of children under Government of India’s own “Vaccination Act” passed in 1880. This Act was based on the Bombay Legislation Act passed in 1877.

5. Appointment of women as vaccinators to work among the female population in the North-West Frontier Provinces and the Madras Presidency in 1882-83.

The Vaccination Act was, however, difficult to enforce because:

- The system of birth registration, which began in 1870s, remained defective; and,

- The high rate of immigration from the countryside into the urban areas with many unvaccinated and unregistered children increased complications.

From the middle of the nineteenth century, significant advances were nevertheless made. In the North-western Provinces, depots were established in the hills of
Kumaon to collect vaccine crusts and lymph to supply to the plains. In the 1850s the Bombay Vaccination Department began experimenting with the production of calf-lymph. Arm-to-arm vaccination persisted in parts of Bengal until the First World War. Calf-lymph, preserved by glycerin, was also produced in sufficient quantity to end dependence on imported supply. The Vaccination institute at Belgaum, was manufacturing 600,000 doses of calf vaccine per year in 1911.

As a result of these changes, the scale of vaccination substantially increased in the late nineteenth century. From 4.5 million operations a year in the late 1870s in British India, the total rose to 6.5 million a decade later and touched 9 million in the early years of the twentieth century. There were important advances in techniques too: the lancet was replaced in the 1870s by the vaccinating needle, and few punctures were made. This reduced the risk of infection and the inconvenience for the laboring classes. The vaccination had become a far more efficient and reliable operation in 1900 than it had been three or four decades earlier.

5.4.2 Sources of Funds For Vaccination

To carry on vaccination operations in India, funds were received from the Imperial Government/Provincial Government/Local Authorities/Municipalities/Indian States, or other sources. During the early twentieth century, the statistical analysis reveals that for the country as a whole, the funds were obtained mainly from the Provincial Governments followed by the Local Authorities and Municipalities. Funds given by Indian States and the Imperial government were very limited.

The Provincial level analysis shows some differences and inequalities in the share of funds for carrying out vaccination operations. In Bengal, a major part of the funds was obtained from the Provincial government followed by the Municipality and Local Authority, and to a lesser extent from Indian States. Imperial Funds and other sources, however, had no contribution in Bengal between 1902-1920.
5.4.3 Vaccination in Colonial Calcutta

In Calcutta, inoculation was practiced among certain classes of Europeans as early as 1785. It is reported in 1787 that the Government constructed a hospital for smallpox inoculation at Dum Dum\textsuperscript{42}. The 'arm-to-arm' method of vaccination reached Calcutta on 17\textsuperscript{th} November 1802\textsuperscript{43}. Dr. William Russell, Superintendent-General of Vaccination was given the duty of preserving a constant supply of vaccine for the use of Indian children in Calcutta and sub-ordinate stations in Bengal. He was also to instruct all Hindu and Muslim doctors who might wish to practice vaccination. Under his direction all the European children in Calcutta and its neighborhood were vaccinated by the end of November 1802, and the benefits of the operation were extended to other civil and military stations. It is stated that the end of 1803 gave no fewer than 11,166 vaccinations in Calcutta and other parts of the Bengal Presidency\textsuperscript{44}.

The general duty of supervising vaccination work in Bengal was taken over by the Medical Board in 1816 and the work of the Superintendent-General was confined to Calcutta, from where vaccine was distributed throughout the Presidency.

The slow progress of vaccination in Calcutta can be attributed to the fact that people of the city had a great faith on 'inoculation'. It is stated that it took a very long time to make them reject inoculation and accept vaccination. In 1804, Dr. Shoolbred drew attention to the determined opposition of the Brahmin inoculators and the indifference of the Indians of all ranks and description. Another constant difficulty was to maintain the supply of vaccine during the hot season\textsuperscript{45}. Gradually the numerous 'ticcadars' or 'inoculators' were converted into vaccinators. As an incentive pensions for life were granted to certain Brahmin inoculators in 1805, if they relinquished the practice of smallpox for that of cowpox inoculation in the town and vicinity of Calcutta. In April 1805, after a visual demonstration of the effect of vaccination, 26 Brahmins inoculators signed a statement declaring their full faith in the power of vaccination to prevent smallpox. Another means employed to advance the cause of

\textsuperscript{43} Op.cit; footnote 42; p.128.
\textsuperscript{44} Op.cit; footnote 42; p.130.
\textsuperscript{45} Op.cit; footnote 42; p.131.
vaccination was an order to all European and Indian revenue, judicial and other civil authorities to promote the measure by every means in their power. The common incentives used by them were: the unjustified issue of rice to the poorer classes of natives who brought their children to be vaccinated; and, the giving of small presents of money to those who allowed ‘arm-to-arm’ vaccination from their children or, who collected the vaccine crusts from their arms. In 1837 Dr. Stewart established vaccine stations at public dispensaries and thereby a significant advance was made for the vaccination operation in the city.

The town of Calcutta was divided into 3 districts in 1853, to each of which a superintendent and staff of vaccinators was appointed. It was the duty of the superintendent to go from house to house and try to overcome the objections of the people by persuasion and explanation, and bring vaccinators to their doors. The Superintendent-General himself supervised the whole process, popularly known as "Calcutta System"^{46}.

It is not possible to have a clear view of the nature of the spread of vaccination operation in the city of Calcutta for lack of information. Based on the limited data for the late nineteenth and early twentieth century, we find that 1.5 to 4 percent of the total population of the city was vaccinated by 1918. Thereafter, the vaccination rate increased in the city.

Figure: 5.7

{\[ \text{Vaccination Rate in Calcutta - Sex Wise} \]}

^{46} Op. cit.; footnote 43; p.131
The sex wise distribution of the total number of persons vaccinated in the city shows that the proportion of female vaccination rate was comparatively higher than the male vaccination rate during the years under consideration.

### Table: 5.4 Nature of Vaccination Operations in Calcutta

<table>
<thead>
<tr>
<th>Year</th>
<th>Primary Vaccination</th>
<th>Re-Vaccination</th>
</tr>
</thead>
<tbody>
<tr>
<td>1881</td>
<td>84.5</td>
<td>15.5</td>
</tr>
<tr>
<td>1891</td>
<td>88.9</td>
<td>11.1</td>
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<td>1901</td>
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<td>61.5</td>
<td>38.5</td>
</tr>
<tr>
<td>1930</td>
<td>15.0</td>
<td>85.0</td>
</tr>
<tr>
<td>1940-41</td>
<td>6.9</td>
<td>93.1</td>
</tr>
</tbody>
</table>

**Source:** Compiled from the Administrative Reports of CMC.

Out of the total operations performed in the city, the percentage of Primary Vaccination was large in the initial years i.e. between 1881 and 1918. Thereafter, the percentage of Re-Vaccination increased.

### Figure: 5.8

![Vaccination Rate in Calcutta - Religion Wise](image)
Among the different religious groups in the city, as shown in Figure 5.8, the vaccination rate was the highest among the Christian population, followed by the Muslims, Hindus and Other religious groups.

5.4.4 Spatio-Temporal Analysis of Vaccination in Colonial Calcutta

For a spatial and temporal analysis of Vaccination operations against ‘smallpox’ in Calcutta, the ward wise data has been taken into consideration. To maintain comparability with the preceding analyses, data for 1881, 1901, 1918 and 1930 has been analyzed.

Map 5.2 gives the spatial distribution of the vaccination rate of ‘smallpox’ in Calcutta in the selected years. The study reveals that:

- The total vaccination rate in the city varied between 2 to 125 persons per 1000 until 1918. The overall vaccination rate in the city increased significantly in 1930 when the lowest vaccination rate was about 60 persons and the highest was between 400-575 persons per 1000 population.

- The main European quarter of the Town i.e Waterloo Street, and Hastings recorded the highest vaccination rate in 1881. The other wards recorded a vaccination rate of less than 25 people per 1000 population.

- People in large numbers took the vaccination or ‘ticca’ in 1901 when the city was under the rampage of ‘plague epidemic’ to ensure their safety against at least smallpox. This led to a rapid increase in the vaccination rate in the city. The exceptions were the Burra Bazaar and Jorabagan wards with a low of about 20 persons per 1000 population because these wards were seriously affected by the plague epidemic. The highest vaccination rate was recorded in Watgunge, Entally, Moocheepara, Colootola and Bhowanipore wards where, the vaccination rate varied between 50 – 103 persons per 1000 population.

- In 1918, the ‘influenza epidemic year’, the vaccination rate in most of the wards increased. The lowest rate was about 16 persons per 1000 population in Waterloo Street and the highest was about 80 persons per 1000 population in Fenwick Bazaar.
The sex wise vaccination rate in the city of Calcutta shows that the female vaccination rate was higher in almost all the wards of the city. This could be attributed to a higher awareness among the women in the city.

Male vaccination rate was higher only in Hastings in 1881, Burra Bazaar, Moocheepara, Taltola, Entally and Ballygunge-Tollygunge wards in 1901, Park Street, Ballygunge-Tollygunge wards in 1918, and Sukea’s Street, Burra Bazaar, Waterloo Street, Puddopooker, Beliaghata, Entally, Beniapukur, Ballygunge, Bhowanipore and Tollygunge wards in 1930.

This variation in the vaccination rate in different wards of the city over time was because people once vaccinated did not opt for another operation within a short period of 10 years except when epidemics hit the city. On such occasions people went in for another ‘ticca’ in large numbers to ensure their safety against the disease.

5.5 Conclusions

The study of the health care services provided by the colonial government in India and in the capital city of Calcutta, reveals that:

- The Indian Medical Service (IMS) and the Bengal Medical Service (BMS) provided medical aid to the Europeans in India until the eighteenth century. In the initial years of these services recruitment of the medical professionals was done in England but gradually indigenous Europeans and Eurasians were also appointed in this service. For a considerable period of time these surgeons were assigned more of non-medical jobs than medical jobs. Contemporary Britain also did not have consultants and medical practitioners, as we know them today. The trained physicians catered only to the wealthy clients. The so-called “surgeons” were only apprentices and performed surgeries along with midwifery and medical dispensation.

- Indians were allowed to join the IMS or BMS only after 1855 but under European supervisors. Participation of Indians in the service was limited because recruitment examinations were conducted in England. The main
branch open to the Indian doctors and other medical professions was the 'subordinate medical service'. Their pay was very low and they were not allowed to treat the Europeans. Their promotional avenues were also restricted.

- Most of the hospitals opened in the eighteenth century in Calcutta were meant for the Company’s soldiers and sailors, and other Europeans in the city. The first ‘hospital’ for Europeans in Calcutta was opened in 1708 and it was only eighty years later, in 1792, that the first hospital for the local Indian population was opened on Chitpore Road and the second in 1794 at Dharamtola. In terms of establishment of hospital Calcutta does not compare unfavorably with contemporary London. Most of the ‘hospitals’ in London until the end of the seventeenth century were either religious institution caring for the destitute or else provided medical services to Royalty. Specialized hospitals for the infected and for women and children were opened only in the middle of the eighteenth century. Hospital services provided by the National Health Services were geographically unequal with a concentration in London.

- Many hospitals and dispensaries were opened in Calcutta in the nineteenth century in different categories under Provincial, Private and Local initiations. Category I, III and IV i.e. State Public, Local Funded and Private Aided hospitals and dispensaries served the common people and provided ‘indoor’ facilities in Calcutta. Nearly 80–90 per cent of the total patients treated in different categories of hospitals and dispensaries were ‘outdoor’ patients.

- More than 80 percent of the total beds available for ‘indoor’ patients in different categories of hospitals and dispensaries were in category I, III, and IV. Only 10 to 30 percent of the total patients treated in these hospitals and dispensaries were admitted for diseases associated with bad environmental condition i.e. for diseases like malaria, smallpox, cholera, and dysentery/diarrhea.
• Though the smallpox vaccine was discovered in 1790s, it was made compulsory in England only in 1853. Various social stigmas and beliefs led to slow progress of the operation in India as well. Vaccination against ‘smallpox’ was introduced in India as well as in Calcutta in 1802.

• The vaccination rate in Calcutta increased from 15.1 per cent in 1881 to 315.2 percent in 1946-47; i.e. nearly 30 times. Vaccination rate was higher in the female population in the city. The Christians recorded the highest vaccination rate followed by the Muslims, Hindus, and ‘Others’.

The ward wise analysis of vaccination rate in the city also shows an increase in the number of vaccinations over time. There are variations in different wards over time. This could be attributed to the fact that people were not willing to take the vaccination on a regular basis. It was only at times of epidemics that they opted for it.
Map 5.2

Vaccination Rate in Calcutta

Index

<table>
<thead>
<tr>
<th>Vaccination Rate (per 1000 Population)</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 20</td>
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<td>20 - 39.99</td>
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<tr>
<td>80 - 104</td>
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</tr>
</tbody>
</table>

Maps Not to Scale
Vaccination Rate in Calcutta

1930

Vaccination Rate (per 1000 Population)

- 59.53 - 127.38
- 127.38 - 193.94
- 193.94 - 269.96
- 269.96 - 416.43
- 416.43 - 574.13

Male
Female