Bombay First

MY BOMBAY – MY DREAM

Healthcare

Mumbai Metropolitan Region

Introduction

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In little over a decade, Mumbai will be the largest city in the developing world. It will be a symbol of the megalopolis of the twenty-first century. And, like its counterparts in the developing world, the city's future is marked by great possibility and great peril. While there has been considerable improvement in healthcare indicators since independence, Mumbai still remains well behind most developed Indian and international cities. Healthcare infrastructure in Mumbai in terms of hospital beds per 1000 population lags behind several key peer Indian cities such as Gurgaon, Delhi, Chennai, Hyderabad and Bangalore. Alongside the shortfalls in hospital beds, there is also a shortage of healthcare professionals, equipment and infrastructure needed at various levels in the healthcare delivery supply chain.

Healthcare delivery in Mumbai faces other important challenges. Mumbai does boast of traditionally reputed and well known general and speciality hospitals but the public healthcare facilities are burdened by the needs of an ever growing population. This problem gets further accentuated by the specialty healthcare needs of in-migrants and citizens from other parts of Maharashtra. Although, the hospitals under Trusts have a requirement for providing 10 percent of the capacity to the under-privileged and BPL[1] patients, however, this does not provide adequate solution for the masses.

New healthcare infrastructure development in Mumbai has been constrained because of high cost of real estate. The private sector finds investments in healthcare in Mumbai un-remunerative, while the

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[1] Below Poverty Line

government find it prohibitive in terms of capital and management demands.

This paper covers healthcare delivery from five different facets: infrastructure capacity, accessibility, resources & productivity, disease focus and preventive measures. Healthcare in Mumbai requires a multi-pronged approach to address these aspects in the healthcare value chain to make a paradigm shift in delivery of healthcare services to the citizens of Mumbai.

The Committee has deliberated on the numerous challenges faced by the City and recommended potential solutions to deal with some of these challenges.

The various recommendations provided by the Committee are summarised as follows:

A.	Accessibility
	Key concern: Affordability of healthcare solutions to economically backward sections of the City Potential solution: • Social health insurance schemes for weaker sections of the society
B.	Resources & Productivity
	Key concern: Improving efficiency and productivity of existing resources Potential solutions: • Proposal for centralization of resource utilization such as under the – Ambulance Service Foundation (Emergency Medical Services Model) • Promote accreditation of hospital and health care facilities • Developing a City wide hospital information management system
C.	Infrastructure Capacity
	Key concern: Limited capacity and reach of hospitals and primary health care providers Potential solution: • Use of Public Private Partnerships models to support infrastructure capacity addition in hospitals and primary care facilities (BOO[2]/DBFO[3]/Management Contracts/Mobile Clinics)
D.	Disease Focus
	Key concern: Mumbai has not conquered infectious diseases and is

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[2] Build, Own, Operate

[3] Design, Build, Finance and Operate (DBFO) Scheme

	witnessing an ascent in lifestyle diseases Potential solution: • Developing a sanitation and sewerage infrastructure to manage incidence of infectious disease (covered by the other Sub-committee on urban development)
E.	**Preventive Measures**
	Key concern: Growing shift from curative to preventive solutions to lifestyle diseases • Developing a wider well being agenda through information dissemination and promoting sports and recreational facilities

Clearly, healthcare delivery in Mumbai has a significant scope for capacity development and efficiency improvement through further public private investment in infrastructure facilities. Many aspects of delivery of the Bombay First strategy will therefore have an important contribution to make to improve the healthcare and well-being in Mumbai. I urge the government to initiate pilot projects as examples of promoting these solutions to enable a greater acceptance of recommendations made in this paper.

Acknowledgement

By Ameeta Chatterjee - Director, KPMG

We are delighted to support Bombay First and the Health Sub-committee in outlining potential solutions for improving the healthcare provision in the City. The document provides an oversight on the key areas of concern on the current healthcare services in Mumbai. Under the guidance and support of the Sub-Committee, we have highlighted relevant issues in the Healthcare infrastructure in Mumbai and suggested potential solutions to deal with them keeping in mind the scale of the challenge and the required speed of implementation.

This project has been a collaborative effort and we would like to thank the Social Infrastructure Healthcare Sub Committee for their valuable inputs and guidance with a special mention to Dr. Gustad B. Daver who led the sub-committee. Other Team members included Micah Joseph, Anil V. Kamath, Dr. Armida Fernandez, Dr. Wasundhara Joshi, Priya Agrawal, Satish Kini and Kapil Khandelwal. I would like to place on record our appreciation to Ashank Desai, Suresh Muzumdar and Vainateya (Vai) Pinglay from Bombay First for their assistance and coordination of the Committee proceedings. The team responsible for creating this paper comprises of professionals who have significant experience in the healthcare sector and have over the years worked towards enhancing the framework of the same.

Last but not the least, I would like to acknowledge the tireless contributions of my team at KPMG which distilled inputs and recommendations from the experts mentioned above and helped me make this paper a reality, within a challenging timeframe.

Contents
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Healthcare Infrastructure in Mumbai

The healthcare infrastructure in Mumbai consists of public and private providers. These include the Non Governmental Organisations and the voluntary sector, the small private clinics and the large pan India hospital groups. Mumbai has a number of large hospitals such as Hinduja, Breach Candy, Jaslok, Bombay Hospital, Nanavati, and Lilavati, which are managed and operate within public trusts, but get classified under Private healthcare infrastructure.

The existing Public healthcare infrastructure in Mumbai along the primary, secondary and tertiary segments is provided below.

Public Healthcare Infrastructure in Mumbai
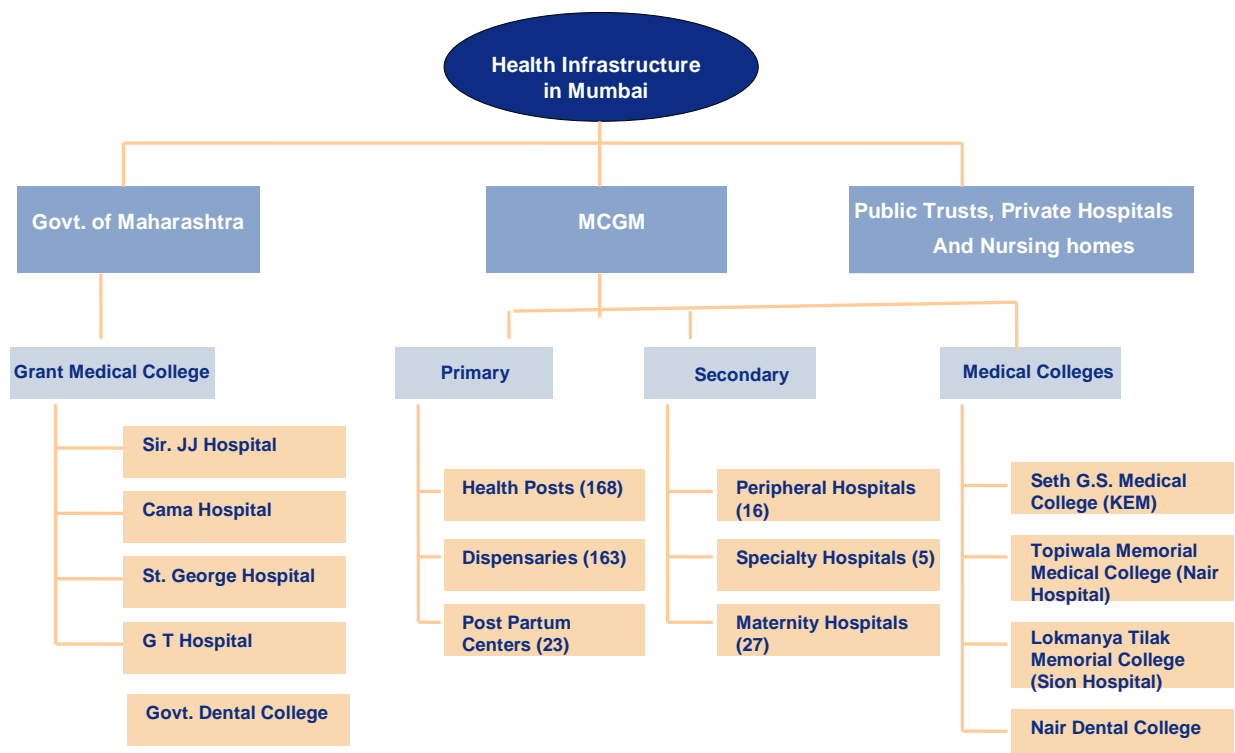
Source: KPMG Analysis, Public Healthcare Infrastructure in Mumbai – Mumbai Transformation Support Unit, March 2006

Primary healthcare is considered to be the backbone of the healthcare system in the city. From multiple global examples, we have proof that services provided through primary healthcare infrastructure help maximize quality and coverage to all strata of society. However, in Mumbai, though we have a strong secondary and tertiary care

infrastructure, the primary healthcare facilities are inadequate. This has the effect of the poor and the disadvantaged not being adequately provided for.

The Municipal Corporation of Greater Mumbai (MCGM) managed 354 primary health centres in 2006, of which about 160 each were health posts and dispensaries, and the rest were post partum centres.

Despite this infrastructure, primary health care facilities are not easily accessible to slum dwellers and other marginal sections of society. There is a need for stronger grassroots level healthcare infrastructure. In the absence of this, the financially weaker sections of society postpone seeking medical facilities until serious symptoms develop that hamper their ability to earn a livelihood. Also, the institution of the general practitioner is slowly dwindling creating pressure points for the OPD[4] facilities in hospitals.

Hospital Infrastructure in Mumbai

The hospital network supporting the primary health care system in Mumbai is well known for its quality and speciality care that supports not only the city but patients from rest of the country. A list of the larger hospitals (public/teaching/private) is listed in Appendix B.

In addition, there is also a number of new and upcoming hospital projects planned in Mumbai as listed below:

Name of Hospital	No. of Beds	Remarks
Seven Hills Hospital	1,500	Expected to start operations in July 09. 300 beds operational in first phase. Located at Andheri
Lilavati hospital	300	Planning to set up a new hospital in Western Suburbs
Apollo Hospital	550	Located at Navi Mumbai. 400 beds in first phase
Hinduja hospital	100	New multispeciality hospital is under construction at Khar
Global Hospital	500	Tertiary care hospital at Lower Parel. Expected to start operations by Dec-09
Government hospital	120	under implementation. Expected to be completed by 2010
Apollo Hospital	250	Entered into a Joint venture to set up a hospital in Thane
Apollo Hospital	250	Entered into a Joint venture to set up a hospital in South Mumbai
Wockhardt- Versova	500	
Wockhardt- Mulund	270	
Adams Wylie Hospital (Wockhardt)	340	Located in South Mumbai near Nair Hospital
Shatabdi Hospital	500	Planning to set up a new hospital in Govandi
Kohinoor City Hospital	175	The super-specialty hospital is expexted to be commissioned by December 2009 with 100 beds in first phase. Located in Kurla-Vidyavihar
Hiranandani Hospital	100	
Source: Crisil Research, KPMG Research, Press Articles		

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[4] Outside Patient Department

The table below summarised the key health performance indicators across Mumbai and its peer cities. As can be observed, Mumbai City falls behind the other Cities on these parameters.

City	Infant Mortality Rate (IMR)*	Maternal Mortality Rate (MMR)*	Crude Birth Rate (CBR)*
Mumbai	34.6	0.6	13.8
Delhi	25.4	0.5	18.4
Chennai	13.7	0.4	15.8
Bangalore	29.3	0.4	19.1
Kolkata	24.6	0.5	16.4

*Per 1000 population

Source: NCAER. MOHFW, Crisil

Further, while Mumbai is hailed as the economic capital of India, and in spite of additional healthcare capacity plans within the City, projected healthcare infrastructure, measured as the number of hospital beds planned per 1000 population, is lower than several key peer cities such as Gurgaon, Chennai, Hyderabad, Bangalore, and Delhi. While all cities are expected to significantly increase the availability of beds by 2012, Mumbai is likely to continue to lag its peers, as per data from Indicus and CRISIL shown in table below:

	2007	2012
	Beds per 1000 population	Beds per 1000 population
Mumbai	1.63	2.55
Chennai	2.20	3.86
Hyderabad	2.42	4.32
Bangalore	2.22	2.74
Kolkata	0.78	3.40
Gurgaon	3.10	5.00
Delhi	2.06	1.91

Source: Indicus, NCAER, CRISIL, KPMG Analysis

Going strictly by this parameter, one can clearly interpret that Mumbai will transgress to the bottom among comparable metros by 2012, if one were to ignore Delhi which remains largely stagnant across the comparison period (but also benefit from upcoming facilities in Gurgaon).

In terms of access to the under-privileged and below poverty line patients, hospitals that are run as Trusts are required to reserve 10 percent of the capacity for the weaker sections of society, though this is

difficult to assess and enforce. At the same time, government hospitals and ESIS[5] hospitals have under-utilised and sub-optimally performing hospitals on their expansive sites. According to BMC survey[6] estimates, Mumbai has around 6 million BPL people (1.22 million families) with monthly expenditure less than INR 592. Also, they do not own a telephone or fridge and they find it difficult to access basic services such as toilets, schools and shelter.

We also observe that further to the overall shortage of capacity, there is also an uneven distribution of hospital capacity in relation to the population spread across the City. As the table below suggests, South Mumbai accounts for 76 percent of hospital beds in the city, though South Mumbai accounts only for a small percentage of the population.

Distribution of Beds in Mumbai			
Region	Private	Govt.	Total
South Mumbai	11,857	7,035	18,892
Rest of Mumbai	1,832	4,260	6,092
All Mumbai	13,689	11,295	**24,984**

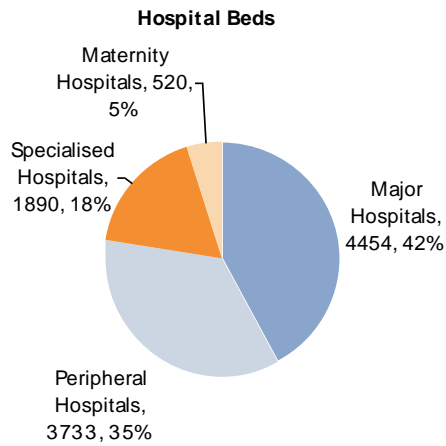Source: KPMG Analysis, Refer to Appendix B for detailed list of hospitals

This spatial distribution can be explained in case of private hospitals because of higher affluence levels in South Mumbai but is largely inexplicable in case of government healthcare infrastructure, which also follows a similar pattern.

Maternity healthcare infrastructure

Though, reducing the infant mortality rate is one of the aims, the state maternity facilities present in Mumbai are inadequate. As shown below, only 5 percent of hospital beds are in 'maternity hospitals' in Mumbai

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[5] Employee State Insurance Scheme

[6] Source: http://www.expressindia.com/latest-news/60-lakh-people-in-city-below-poverty-line-BMC-Survey/305969/, May 2008

Hospital Beds

Maternity Hospitals, 520, 5%

Specialised Hospitals, 1890, 18%

Major Hospitals, 4454, 42%

Peripheral Hospitals, 3733, 35%

Source: MCGM

Though 'non-maternity' hospitals can also provide for maternity care, in general, there is a felt need to increase maternity healthcare infrastructure.

There is also a greater need for coordination and better communication between geographically spread out maternity facilities. While on the one hand, Mumbai has underutilised facilities within the city in the form of private clinics and nursing homes, on the other hand, there are over booked maternity facilities in larger hospitals.

Some of the other areas that need attention are Accident & Emergency (A&E) facilities and number of ICU[7] beds. While the Sub-committee was unable to identify reliable data in relation to the capacity and availability of the above facilities, the sub-Committee felt that going forward this should also be looked into in detail.

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[7] Intensive Care Unit

Accessibility to Healthcare

Mumbai needs to map the accessibility of healthcare infrastructure to its citizens. Accessibility can be assessed across several dimensions, such as geographical access, segment adequacy (primary, secondary and tertiary healthcare), response time of care and affordability.

With a view to understand the availability of facilities, we have mapped the large hospitals in Mumbai geographically.

Map highlighting the Geographical Coverage of Prominent Hospitals in Mumbai
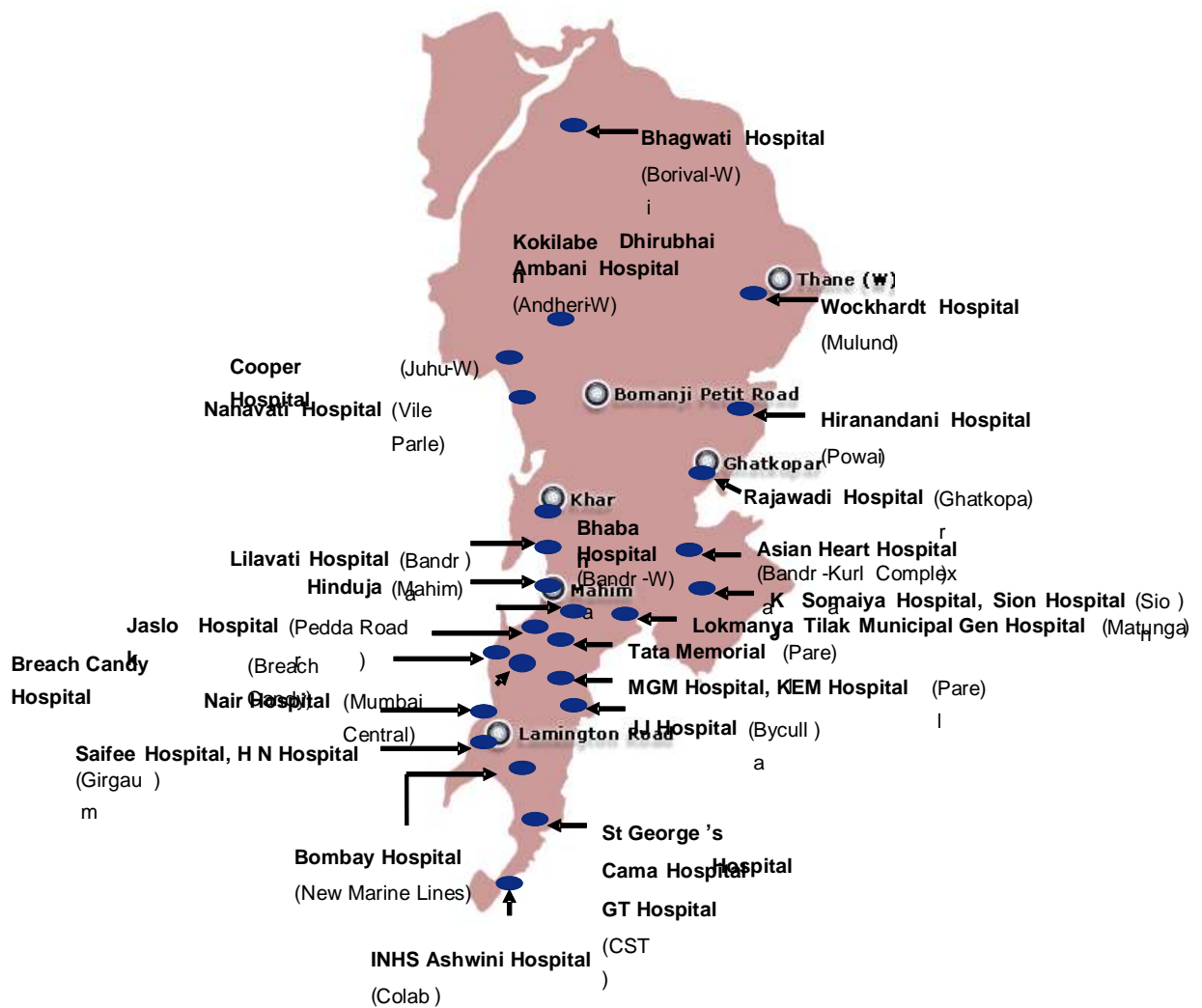
Source: Crisil Research, Summary of the Report on Workforce Management Options & Infrastructure Rationalisation of PHC

The availability of healthcare services in urban areas is currently inadequate. The underprivileged and BPL population of urban areas tend to have higher unmet need for healthcare. There are studies that show people residing in Mumbai do not have proper access to health-care services as 32 percent of the reported ailments remained untreated. The main reasons for not utilizing services of public sector in Mumbai are inconvenient location and timing[8].

85 percent of the Municipal Public Health Budget is spent at the 3 Municipal Teaching Hospitals[7]. Budgetary allocations for Municipal Public Health Budgets and NUHM[9] should have a greater focus on preventive healthcare.

Besides the availability and access-ability factor, one of the biggest challenges to providing "Healthcare to All" in Mumbai is the affordability factor for example in a city like Mumbai, even though we may have 4-5 good hospitals in the Mahim - Bandra area, a slum-dweller in Dharavi will not get access to healthcare because he cannot afford the hospital charges. Conversely, if these Hospitals were affordable to slum dwellers, they would not be able to handle the patient loads.

Given the current low penetration of health insurance coupled with large spending, of over 70 percent from household incomes on healthcare, the affordability is a key issue that demands policy attention particularly in relation to below poverty line and low income groups. This issue is even more pronounced in the case of slum-dwellers and these sections of the society need to be addressed by a health policy on an urgent basis.

It is interesting to note the significant role that private sector financing plays in the healthcare system of India. On comparing the public versus private share of health expenditure in the City, one can see that the public sector (including Central and State Governments) typically account for only 29 percent of the health expenditure while private sources account for 71 percent (69 percent being direct household spends) of the health expenditure.

There is a clear shortage of facilities provided by the public sector in Mumbai; a report by the Task Force on Medical Education constituted

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[8] National Urban Health Mission: An analysis of strategies and mechanisms for improving services for urban poor. Background paper for National Workshop on Urban Health and Poverty, 2-3 July 2008, New Delhi; organized by Ministry of Housing and Urban Poverty Alleviation, Government of India

[9] National Urban Health Mission

by the MHFW[10] found that the private sector provides 58 percent of the hospitals and 29 percent of the hospital beds in India.

Given this backdrop, it is imperative that the City formulates a health insurance scheme targeted towards weaker sections of society, on an urgent basis. There are some success stories which can show the way. Refer to Case Study 1 (Rajiv Aarogyasri Community Health Insurance Scheme).

Health insurance is a much wider health sector initiative that needs to be considered in its socio-economic and political context while taking into account the fiscal consideration for a program of such significance.

The advantage of a heath insurance model is that it provides a suitable incentive to the private sector to set aside or build new capacities to service a particular section of the society. Secondly it also gives the end user an option to select its service provider through a range of pre-identified service providers. This health insurance scheme can also act as a catalyst for accreditation of the hospital and other facilities within the cities.

Our views on how to structure this scheme are presented in details in the concluding section on recommendations.

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[10] Ministry of Health and Family Welfare

Resources & Productivity

The healthcare system of Mumbai has witnessed significant developments since independence. However, it still lags significantly behind vis-à-vis its international counterparts. Despite being the economic and financial centre of the country, there is shortage of qualified healthcare professionals alongside the shortfalls in hard infrastructure. There is also a widespread mismatch of infrastructure/equipments and human resources leading to under-utilization of resources and sub-optimal outcomes.

In Mumbai, healthcare services are being provided either by the public sector entities or by private practitioners/organizations, or a combination of both and the site of delivery of healthcare can be located in hospitals or be accessed through practitioners working in the community (such as general medical practitioners). While these operate in silos within their limited reach, we must look at means of bringing together independent facilities and skills to maximise the efficiency and capacity of the overall healthcare infrastructure.

One of the means of improving quality is to enforce quality control measures through regulation and accreditation processes. Regulation is mandated by the Government and is based on minimum standards of inspection, enforcement and public accountability. On the other hand, accreditation is voluntary and is based on optimum standards, professional accountability and encourages healthcare organizations to pursue excellence in service delivery.

Hospital accreditation has been defined as "a self-assessment and external peer assessment process used by health care organizations to accurately assess their level of performance in relation to established standards and to implement ways to continuously improve".

Accreditation systems are structured in order to provide an objective measurement of quality and quality management. These focus primarily on the patient and their movement through the healthcare system, which includes how they access care, how they are cared for after discharge from hospital, and the quality of the services provided for them. This also includes aspects such as training and education of staff, credentials, clinical governance and audit, research activity, ethical standards, etc.

Various countries have set up accreditation organizations to improve quality standards. Some examples are cited below:

Country	Name of Accreditation Organisations
India	National Accreditation Board for Hospitals & Healthcare Providers (NABH)
USA	Joint Commission International (JCI)
UK	Trent Accreditation Scheme
Australia	Australian Council for Healthcare Standards International
Canada	Accreditation Canada (formerly the Canadian Council on Health Services Accreditation
New Zealand	Quality Health New Zealand
France	HAS (Haute Autorité de Santé)

NABH accreditation is based on optimum standards, professional accountability and encourages healthcare organizations to pursue continual excellence. Cardinal principles of accreditation evaluation are as follows:

- Hospital operations are based on sound principles of system-based organization, which are transparent and objective;
- Accreditation standards are implemented and institutionalized into hospital functioning;
- Patient safety and quality of care, as core values are established and owned by management and staff in all functions and at all levels;
- A structured quality improvement programme based on continuous monitoring including feedback on patient care services is operating

The standards covers a wide range of requirements/ services such as Information to patients; Rights of the patient and family; Quality in investigations; Surgical services; Medication; Infection control; Facility and infrastructure maintenance and other support infrastructure.

An accreditation also ensures that there is regular independent check on adherence to the prescribed standards. While this can be a long drawn process of up to 9-12 months, it provides a benchmark comparison and monitoring for the healthcare delivery service providers which can provide necessary confidence in the system to the citizen s and to the government.

Some of the hospitals accredited by NABH or JCI (standards applicable in USA) in Mumbai are:

Hospitals accredited by NABH	Hospitals accredited by JCI
Dr. L. H. Hiranandani Hospital, Mumbai	Asian Heart Institute, Mumbai
P.D. Hinduja National Hospital & Research Centre, Mumbai	Shroff Eye Hospital, Mumbai
Godrej Memorial Hospital, Mumbai	Wockhardt Hospital, Mumbai

Source:http://www.qcin.org/nabh/hospitat_accre/accredited.php

http://www.jointcommissioninternational.org/JCI-Accredited-Organizations/

We recommend accreditation to be made mandatory in Mumbai for all new upcoming hospitals. For existing hospitals, 3 years time should be given to get accredited before making it mandatory. In addition to the above, MCGM should develop a detailed plan for accreditation of government hospitals in the next five years.

The Bombay Nursing Home Registration Act

The Bombay Nursing Home Registration Act, (Amendment), 2005 (BNHRA, 2005) is the only Act for registration and inspection of private nursing homes in the state of Maharashtra. It was first enacted in 1949 and some amendments were made in December 2005. Rules under the Act were first drafted as late as in the 1970s and these were not comprehensive. Framing of comprehensive rules under the Act is essential for its implementation, ensuring minimum standards and some regulation for private nursing homes.

Centre for Enquiry into Health and Allied Themes (CEHAT) was invited by the Government of Maharashtra to facilitate the process of formulating Rules for the Bombay Nursing Home Registration Act (Amendment) 2005. The two key focus of the process were:

• Formation of rules involving the representatives from medical associations, consumer groups and health rights organizations; and

• Develop a framework for accreditation of nursing homes.

The draft rules were submitted to the government in June 2006 contain the following

- Minimum standards of physical infrastructure, equipment and staffing.

- Detailed standards were submitted for nursing homes and hospitals.

- Standards regarding human resources, their qualifications and training

- Procedure to implement minimum standards as part of implementation of BNHR Act (amendment), 2005

- Patients' rights and specific expectations from the nursing homes in order to fulfil these.

- A provision of committees to detail standards for other facilities and multiple specialties.

The draft needs to be finalised based on consultation with the government stakeholders and the private sector on an urgent basis. While the Act has already come into force in the entire State by a government notification in June 2005 itself, its implementation is limited, in the absence of finalised rules under the Act.

Disease Focus

While there has been considerable improvement in healthcare indicators since independence, Mumbai still remains well behind its peer cities in the country. Key health attainment indicators for the population of Mumbai are summarised below:

	Mumbai	Maharastra	India
Infant Mortality Rate per '000 population	34.57	35*	55*
Maternal Mortality Rate per '000 population	0.63	1.49**	3.01**
Life Expectancy (No. of Years)	68	Male: 66	Male: 62.6
		Female: 68.4	Female: 64.2
Percentage of underweight below 3 years age (weight-for-age)	50%	33%#	46%#
Percentage of underweight below 3 years age (height-for-age)	40%	44%#	38%#
Access to safe drinking water (Percentage of population)	75-80%	79.8%##	77.9%##

Source: MCGM; figures for IMR and MMR are for year 2006

*2007 data

**2001-03 data

#2005-06 data

##2001 data

Source: National Health Profile 2008, National Family Health Survey 3 (2005-06)

Mumbai has not conquered infectious diseases and is witnessing an ascent in lifestyle diseases. As the charts below highlight, cases of Diabetes and Hypertension are increasing rapidly. These are closely followed by malaria, typhoid and diarrhoea.

The growing population pressures, inadequate housing and poor urban planning have resulted in poor levels of sanitation and sewerage disposal. This is a core reason for many infections and lifestyle diseases in Mumbai.

# of cases in 64 dispensaries in 2008
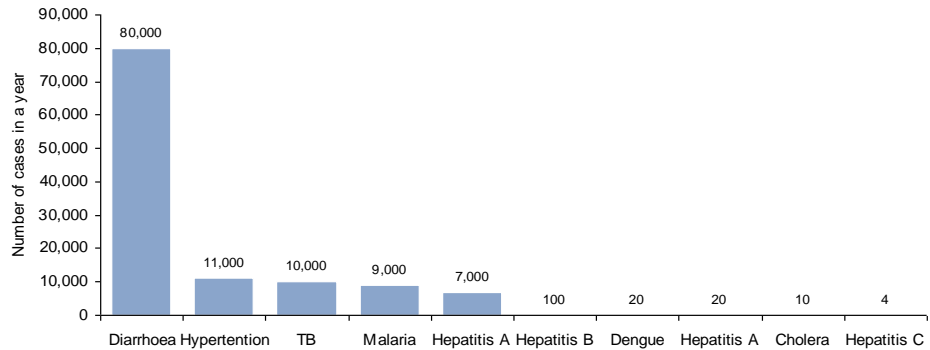
# of cases in 25 BMC hospitals and 4 state hospitalsl in 2008
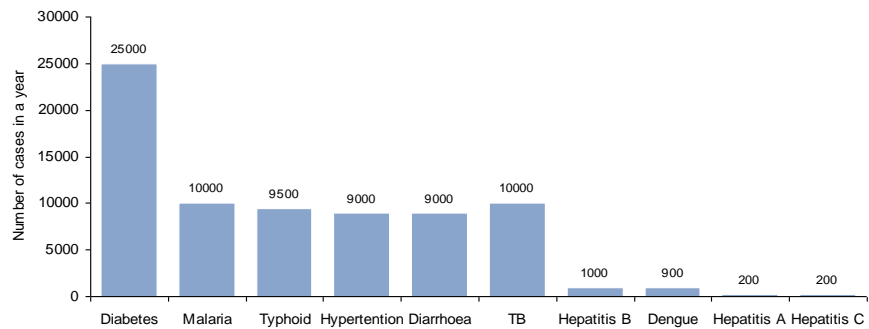
Source: White Paper by Praja.org. Note: All numbers are approximations and not actual figures.

- There has been a constant rise in the number of cases of Falciparam Malaria, the more lethal malarial strain. Falciparum infections have increased from 20 percent to 30 percent to 40 percent of the total malarial infections from 1994-2004. Falciparum's resistance to common anti-malarial drugs compounds the problem.
- The number of reported malaria cases in Mumbai has increased by almost 47 percent to 6,300 in the period January–May 2009, compared with 2,300 cases in the corresponding period last year. The large number of infrastructure and construction projects is the likely reasons that have resulted in this increase. In May 2009 alone, 1,194 cases of malaria were reported. [11]
- Since 1990, a resurgence of tuberculosis (TB) has occurred, characterised by a 70 percent to 140 percent increase in the rate of

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[11] http://timesofindia.indiatimes.com/news/city/mumbai/Malaria-cases-on-the-rise-in-Mumbai/articleshow/4580471.cms

TB-related deaths among adults aged 25-44 years. A vital factor contributing to this phenomenon is HIV infection.[12]

- The incidence of stroke in Mumbai has been found to be comparable to the highs in developed countries such as Germany, Australia and England. A study in 2005–06 established that as many as 1,520 persons in a population of a million (aged between 25 and 85) suffered strokes in Mumbai. The World Health Organization (WHO) has observed an increase of more than 100 percent in stroke incidence in low and middle income countries. [13]

- During the period 2002 to September 2009, on an average about 14,600 HIV+ cases were identified in Mumbai city[14] annually. As per Mumbai District AIDS Control Society, more than 0.1 million person are identified as HIV+ in Mumbai. Further, around 5 percent of Mumbai's population is expected to be infected by AIDS by 2010. ART (Anti Retroviral Therapy) is available for free, information dissemination, diagnosis and the management of the disease needs to be taken up on priority. Prevention of Mother to Child Transmission of HIV (PMTCT), programme needs to be strenthened.

A focus on these high prevalence diseases clearly remains a focus initiative if Mumbai aspires to reach international city benchmarks by 2020 (as described in later sections). Reductions in the incidence of communicable and infectious diseases can be achieved by developing a robust urban development infrastructure coupled with active information dissemination and early detection and diagnosis in identified slum and city areas.

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[12] 'Health Services in Mumbai' by BPCT

[13] http://www.expressindia.com/latest-news/mumbai-matches-developed-countries-in-strokes/457350/

[14] Mumbai District AIDS Control Society (MDACS)

Preventive Measures

Globally, as incomes of countries and cities rise, the prevalence of infectious diseases reduces due to improved hygiene, better and quicker medical intervention, etc. At the same time, the incidence of lifestyle diseases such as heart disease, hypertension, diabetes, etc. rises with income, due to richer diets, sedentary lifestyles, etc.

Going forward, while public health policy, as in developed countries, will need to shift towards information sharing and dissemination for building awareness of these lifestyle diseases. Communication programme and awareness of lifestyle changes is seen as a clear focus.

National Health Programmes

The following compilation provides ready reference to various national health programmes employed by the government to prevent and control the spread of certain diseases. Some of the national level programmes are listed below:

1. National Family Welfare Programme
2. National Vector Borne Disease Control Programme
3. National Filaria Control Programme
4. National Leprosy Eradication Programme
5. Revised National TB Control Programme
6. National Programme for Control of Blindness
7. National Iodine Deficiency Disorders Control Programme
8. National Mental Health Programme
9. National AIDS Control Programme
10. National Cancer Control Programme
11. Universal Immunization Programme (RTI ACT, 2005)
12. National Programme for Prevention and Control of Deafness
13. Pilot Programme on Prevention and Control of Diabetes, CVD and Stroke
14. National Tobacco Control Programme

The focus of these programmes is to build awareness, disseminate information and prevent early by detecting and providing support for developing specific infrastructure facilities to deal with these ailments.

By way of example, we have summarised the nature of support available under the AIDS control programme and Cancer Control Programme as a reference.

National AIDS Control Programme

The overall objective of NACP-III (National AIDS Control Programme) is to put a stop to and reverse the epidemic in India over the next few years by integrating programmes for prevention, care, support and treatment. This will be attained through the following strategies:

- Put a check on infections through saturation of coverage of high-risk groups with targeted interventions (TIs) and scaled up interventions in the general population.

- Provide greater care, support and treatment to a greater number of People Living with HIV/AIDS (PLHA).

- Strengthen the infrastructure, systems and human resources in prevention, care, support and treatment programmes at district, state and national levels.

- Fortify the nationwide Strategic Information Management System.

NACP-III is being integrated with various development programmes such as National Rural Health Mission (NRHM), Reproductive and Child Health (RCH) programme and the Revised National Tuberculosis Control Programme (RNTCP) which focus on prevention of HIV transmission.

Preventive services include awareness generation, condom promotion, prevention of parent to child transmission, increasing ICTC services, promotion of voluntary blood donation and access to safe blood. The policies also have guidelines on targeted Interventions (TIs) for high risk groups like injecting drug users (IDUs), men having sex with men (MSM), female sex workers (FSWs) etc.

National Cancer Control Programme

The objective of this programme is primary prevention of cancer by health education especially regarding hazards of tobacco consumption and necessity of genital hygiene for prevention of cervical cancer. Secondary prevention i.e. early detection and diagnosis of cancers, for example, cancer of cervix, breast and of the oro-pharyngeal cancer by screening methods and patients' education on self examination methods. It also intends to strengthen existing cancer treatment facilities and palliative care in terminal stage of the cancer.

Existing Schemes under National Cancer Control Programme (NCCP) include a one time grant for enhancing cancer treatment facilities across the country, one-time grant of INR 30 million for strengthening of present cancer care services, financial support for development of Oncology Wing in Government hospitals and medical colleges. Other programmes include the District Cancer Control Programme and support for NGO schemes.

While it has been difficult to assess the efficacy and the efficiency of the access and delivery of the national Programmes for Mumbai at large, the MCGM also administers its own health programme. These include: TB, Malaria Control, Leprosy, Immunisation, Family Welfare & Maternal Child Health, School Health Blindness Control, AIDS etc.

Public Health Department infrastructure focuses on preventive aspects of the health services, where the emphasis is on control measures of important diseases such as Malaria, Tuberculosis, Leprosy, Sexually Transmitted Diseases (STDs), HIV/ AIDS etc. and important programmes viz. Polio Eradication, Immunisation against vaccine preventable diseases, Family Welfare and Maternal & Child Health, School Health for the children of Municipal schools, and Disposal of Bio Medical Waste.

In the absence of collated data and information available on delivery and efficacy of the programmes, we suggest that MCGM undertake a detailed exercise in ensuring that the City is accessing all the necessary support (financial and non-financial) being provided by the Central Government and State Government programmes and that its own programmes are mapped to the Central government programmes so as to maximise impact and reach.

Recommendations

As discussed in the previous sections, improvements in health care delivery can be achieved by addressing some critical areas of attention that have been identified by the Sub-Committee under the following top five assessment parameters:

- Accessibility

- Resources & Productivity

- Disease Focus

- Infrastructure Capacity

- Prevention Focus

The Sub-Committee has recommended a series of potential solutions to deal with some of the areas of concern that need to be addressed out of this exercise.

> **Challenge**: Accessibility
>
> **Key concern**: Affordability of healthcare solutions to economically backward sections of the City
>
> **Potential solution**: Social health insurance schemes for weaker sections of the society

The city of Mumbai presents a picture of anomalies in healthcare delivery. Interestingly, accessibility to healthcare has dwindled for the burgeoning population and primary healthcare centers have disappeared in the past few years, resulting in overburdened large hospitals and inefficient healthcare. This has raised issues of affordability of healthcare for large section of the city population which have their habitat in slums and live off less than a dollar per day (below poverty line mark).

The Sub-Committee would like to suggest an innovative approach which has delivered great results in other parts of India. This approach will address effectively both the availability and affordability factors in Mumbai city. This approach also encourages a PPP[15] model whereby government / municipal authorities provides funds for social health

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[15] Public Private Partnership

insurance and land for hospitals while private sector invests in creating Healthcare infrastructure and provide good quality healthcare services at prices which are acceptable to the health insurance payer and at the same time profitable to the private players .

It is proven fact that state provided social health insurance can make Healthcare available for lower income segments of society. Instead of the state using its entire budget for preventive healthcare by trying to build and run its own hospitals, it will be much more effective if some funds were used to pay premium to private health insurance companies to provide social insurance scheme like "Arogyashree" to the BPL population living in Mumbai slums. This social insurance scheme should provide them with cashless medical services in a large network of hospitals which are run by government and private sector including specially set up Hospital complexes in localities densely populated by BPL segment.

Any insurance plan proposed for the City should be based on agreed fiscal commitments and competitive bidding with the private sector. The scheme must also be supported by an identity card system and a technology based clearance and approval system which minimises leakage and mis-use of the system. This could be linked to the voter-ID card/passport of every citizen or ration card in case of minors. The personal details, medical history, biometric data could be collected on a smart card.

One of the ways to structure the insurance scheme within fiscal limits and minimise mis-use is the introduction of deductibles and co-insurance with the citizen paying 15 percent to 20 percent of the expenditure from her/his own pocket. Any insurance programme must provide a cover for the critical diseases that the City would like to address on a pro-active basis including both hospitalization and regular outpatient care. The scheme should provide wide network access to ensure quality care to be offered over a wide geography across secondary hospitals, tertiary care hospitals, primary healthcare centres, general practitioners, pharmacies and diagnostic centres.

A scheme of this magnitude may require that the government and other NGOs play the crucial roles in creating awareness about the scheme, its benefits, procedures, documentation and service levels to the beneficiaries as regards enrolment and claims. This would require building of capacities within the government at multiple locations through training of the facilitators representing the government to ensure seamless implementation and delivery.

The insurance premium corpus should be professionally managed by an IRDA – registered insurance company. The company may be identified through competitive bidding. Out of the corpus, 20 percent to 30 percent of the premium may be handed over to an organization specially set up to manage and settle insurance claims as may be agreed with pre-selected insurance company.

A structured and layered grievance redressal mechanism needs to be in place to attend to the citizen issues regarding enrolments, cards, claims and service standards. This mechanism should ideally be accessible at a ward level.

NUHM recognizes that state/city specific, community oriented, innovative and flexible insurance policies need to be developed. The Mission would strive to set up a risk pooling system where Centre, States and the local community would be partners which will be done by resource sharing, facility empanelment, regulation of adherence to quality standards, establishing standard treatment protocols and costs, apart from encouraging various premium financing mechanisms. NUHM encourages setting up of Mahila Arogya Samities (MAS), to act as the unit of user group as well as for designing and managing a need-based and affordable health insurance scheme[16].

Case Study 1: Rajiv Aarogyasri Community Health Insurance Scheme

Rajiv Aarogyasri Community Health Insurance Scheme (Aarogyasri I)

Aarogyasri I is a unique Community Health Insurance Scheme being implemented in Andhra Pradesh. The scheme provides financial protection to families living below poverty line upto INR 0.2 million in a year for the treatment of serious ailments requiring hospitalization and surgery. Three hundred and thirty procedures are covered under the scheme. The scheme is being implemented through Insurance Company, selected through a competitive bidding process.

The scheme connects PHCs, hospitals, a health insurance company and the state government, and provides cashless treatment to almost 90 percent of the state population. Under this scheme, the empanelled hospitals (367 till date) are required to organize a health camp in rural and interior areas once a week, for offering medical services to BPL families free of cost. Patients with minor health problems are seen and discharged immediately after providing required medicines and vaccinations, while those with severe ailments are given first-hand treatment and thereafter referred to a city hospital for complete cure - covering upto INR 2 Lacs of medical expenses.

According to the data made available by Aarogyasri officials, the scheme covers 20.3 million families in the state of Andhra Pradesh, screening nearly 8,000 people every day and processing 14-15,000 cases every 24 hours. There are more than 350 networked hospitals where Aarogyasri beneficiary can visit whenever required.

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[16] National Urban Health Mission: An analysis of strategies and mechanisms for improving services for urban poor. Background paper for National Workshop on Urban Health and Poverty, 2-3 July 2008, New Delhi

Preauthorization approvals are given within 12 hours for normal cases and almost immediately for emergency cases (through telephonic conversation). On an average, almost INR 35 million worth of insurance applications are processed each day.

How does a Health Insurance scheme work for Mumbai

The City of Mumbai should consider drafting a social insurance scheme under the Rashtriya Swasthya Bina Yogna (RSBY) which is currently being managed by Ministry of Labour and Employment, Government of India to provide health insurance coverage for Below Poverty Line (BPL) families. The objective of RSBY is to provide protection to BPL households from financial liabilities arising out of health shocks that involve hospitalization. Beneficiaries under RSBY are entitled to hospitalization cover of up to INR 30,000 for diseases that require hospitalization. Coverage extends to five members of the family which includes the head of household, spouse and up to three dependents. Beneficiaries are required to only INR 30 as registration fee while Central and State Government pays the premium to the insurer selected by the State Government on the basis of a competitive bidding. Under RSBY the majority of the financing, about 75 percent, is provided by the Government of India (GOI), while the remainder is paid by the respective state government.

A typical social health insurance scheme providing basic hospitalization cover (also including maternity related) is expected to cost between Rs. 800 – Rs. 1200 per family per annum for an annual cover of up to Rs. 30,000. Based on the above, with an estimated BPL population of 1.22 million families in Mumbai, the social insurance scheme would cost around INR 1,200 million per annum for Mumbai city (assuming an insurance premium of about Rs. 1000 per family). This can address the affordability issue alongside the financial feasibility for new capacities required in the City.

As the second part of its commitment to provide Healthcare, government / Municipal should lease land (30 years lease) at especially low rates in designated spaces near the densely populated areas so that private healthcare players can set up hospital complexes to cater to this assured business of INR 1,200 million a year.

The social health insurance scheme will set new benchmark of rates payable for hospital services under its scheme. These rates to be agreed between providers and payers and will be significantly lower than existing market rates based on the fact that the land cost is minimized by authorities and there is assured business enabling providers to plan high level of optimization of service delivery.

A) Emergency Medical Services (EMS) Mumbai Foundation: Ambulance Service

This model addresses the use of pre-hospital care through developing a successful ambulance service in the city. The concept of pre-hospital care under the umbrella of Emergency Medical Services (EMS) has not taken root in India. The lack of critical components of EMS namely formally trained paramedics, easy access with single phone number, well equipped ambulances, organised hospital emergency departments (ED) and trained doctors and nurses, is contributing significantly to the mortality and morbidity of patients needing acute care. Pre-hospital care is non-existent or not organised.

The EMS system:
- Establish prompt initiation of treatment during the first critical "Golden Hour"
- Establish a unified, standardised system of pre-Hospital care and the transportation of victims by trained paramedics to the nearest hospital or right place of medical expertise in the right time
- Introduce relevant 'Life Support Training' courses in India
- Establish formal training of paramedics at a teaching institution using the US national curriculum
- Develop triage and transfer protocols with formal agreements by the hospitals
- Develop one uniform telephone number to be used in the metro as emergency number
- Collaborate and co-operate with the State Emergency Medical Services authority for the development of a State wide EMS Act
- Strengthen existing hospitals to function as trauma/EMS centres
- Co-ordinate with fire brigade and police personnel

The components of ambulance service are:
- **Central Dispatch and Control Centre:** The centre should be equipped with state of art communication centre, GPS racking system, wireless sets and will be in communication with ambulances

and the identified hospital. In case of disaster, the controllers will co-ordinate the activities of the ambulances at the disaster site and the hospitals. Such a centre operated by 'Ambulance Access for All' (AAA) is in operation for over two years and in use with existing telephone no. 1298

- **Ambulance on Road:** Fully equipped and manned ambulances will be deployed at various sites of the city and the suburbs. They will be graded into two: BLS (Basic Life Support Ambulance) and ALS (Advanced Life Support Ambulance). The deployment should be planned in such a way that each ambulance covers a radius of a circle which is not more than ten minutes from the centre where the ambulance is located
- **Trained personnel:** Two certified paramedics and the driver would man each ambulance
- **Paramedic training Institute:** A training centre for the training of Emergency Medical Technicians – Primary care paramedic course (240 hours course) certified by Mumbai University and Paramedics (1000 hours course) certified by Life supporters Institute of Health Sciences and PD Hinduja National Hospital and Research Centre is already established.

To summarise the features of the EMS will be:
- Immediate care at site of the accident
- Medical care in transit to hospital
- Rapid transportation to a nearby relevant hospital
- Prior information to the receiving hospital for it to be is a state of readiness

Overall, for the EMS to work, participation of the Mumbai Municipal Corporation, Government, Private Hospitals, Industries, NGO's, Fire Brigade, Police and citizens will be required. This will enable pooling of the resources across different department to bring a perceptible change in delivery of healthcare. Also in times of emergency and incidents requiring the city hospital infrastructure to operate on emergency mode, such a model can support and provide critical and necessary care.

Case Study 2: Emergency Management and Research Institute

Emergency Management and Research Institute (EMRI)

EMRI (Emergency Management and Research Institute) is a pioneer in Emergency Management Services in India. EMRI is a non-profit organisation in the public-private partnership model. EMRI handles medical, police and fire emergencies through the " 1-0-8 Emergency service". This is a free service delivered through state- of -art emergency call response centres and has over 1900 ambulances across Andhra Pradesh, Gujarat, Uttarakhand, Goa, Chennai, Rajasthan, Karnataka, Assam Meghalaya and Madhya Pradesh. With the expansion of fleet and services set to spread across more states, GVK EMRI will have more than 10000 ambulances covering over a billion population by 2011.

It also has a tie-up with over 6,800 private and government hospitals to ensure immediate patient stabilization on admission to the hospitals. Being a completely free service, anyone, anywhere in the operational states can call the toll free number 108 for any emergency (medical, police, fire) and help will reach them in an average of 15 minutes in an urban area and 20 minutes in rural areas.

EMRI has developed processes and state-of-the-art infrastructure and is operating successfully. The State Governments where it is operational are committed to assist EMRI in regulatory aspects, canalizing funds, leveraging infrastructure, promoting public awareness, etc. In turn, EMRI is expected to provide its operational expertise, establish similar systems across the State, train the required manpower, etc. Unlike its counterparts in Emergency Management System (EMS) across India, EMRI focuses not only on the Sense aspect of EMS but also on the Reach and Care aspects, thereby addressing the entire delivery model of emergency response.

The centralisation of resources across different stakeholders can also be explored in the organ donation and management services. If implemented and managed well, this can provided a much needed support necessary in the healthcare supply chain.

B) Accreditation of hospital and healthcare facilities

It is quite natural for a planner of healthcare infrastructure / services to adopt internationally prescribed norms such as Number of hospitals beds per 1000 population or number of doctors / nurses per 1000 population to measure the level of healthcare infrastructure / services in a particular geography. By accepting norms such as 4 hospital beds per 1000 population or 2 doctors per 1000 population as minimum targets, we need to also focus beyond on how to achieve these benchmarks to looking at improving productivity of existing resources to solve our problems of delivering healthcare in Indian environment.

For accessibility and delivery of healthcare, the City needs to ensure a qualitatively productive healthcare infrastructure which in turn requires regulation and accreditation. Typically, accreditation systems are structured to provide an objective measurement of quality of infrastructure, focusing more on patient care and access to healthcare. Such accreditation processes are essential to ensure quality of system and become important when a city such as Mumbai wants to meet international benchmarks.

We recommend that going forward; the government considers accreditation as mandatory for new hospitals proposed to be set up and initiates a time bound programme (upto 3 years) to permit existing hospitals and related facilities to arrange for accreditation of their facilities. This should be supported with an incentive mechanism through preferred access to accredited hospitals with benefits such as under a social health insurance scheme. MCGM must develop a program on accreditation of state funded hospitals.

C) Developing a Healthcare Information Management System for patient database management and referral management

An area where IT is playing the role of an enabler is in understanding that both caregivers and receivers would need access to information. Hospitals are slowly moving towards clinical information systems, and those that do so will lower their costs, raise their quality, and track and analyze information relating to patient referrals more efficiently.

With a plan to digitize all patient records in state-run hospitals, the Tamil Nadu Government has allotted INR 50 million to Tata Consultancy Services (TCS) to develop a solution for maintaining electronic medical records (EMR). The system is functional in all the 26 hospitals at district headquarters, 162 taluka hospitals, 77 non-taluka hospitals and some of the Primary Health Centres (PHCs) managed by the Government. This application created by TCS is web-based, wherein each patient is allotted a unique ID. All related data is fed into the system. The centralized system can be accessed from anywhere, making the clinical history of the patients easily available. In future, if the hospitals across the State are brought under the same network, this data could be shared across hospitals.

> **Challenge**: Disease Focus
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> **Key concern**: Growing incidence of infectious diseases alongside ascent in lifestyle diseases
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> **Potential solution**: Developing a sanitation and sewerage infrastructure to manage incidence of infectious diseases

When it comes to disease profile, the city presents co-existence of infectious diseases (caused by bad hygiene, sanitation etc) and lifestyle diseases (caused by sedentary lifestyle patterns). Reducing disease incidence entails a multi pronged approach to address aspects such as

sanitation, hygiene and nutrition on the one hand, and inculcating a healthy lifestyle through awareness, sports centers, gyms, jogging parks, steps to promote healthy habits (like walking to office) etc.

Of particular significance is the strong linkage between health and efficient sanitation and sewerage disposal. The latter has to be taken up on priority by the concerned authorities.

The sub-Committee has indicated some interesting suggestions on utilising mobile short messaging service (sms) and announcements at railway stations as methods of quick information dissemination, especially when treating pandemics such as the H1N1 flu.

While taking into consideration the factors described in previous sections of this paper and their implications, healthcare efforts should envisage to establish a well integrated healthcare service structure which integrates healthcare service with wellness and schemes which ensure food, housing, sanitation and livelihood security through increasing public private partnership.

> **Challenge**: Infrastructure Capacity
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> **Key concern**: Limited capacity and reach of hospitals and primary health care providers
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> **Potential solution**: Use of Public Private Partnerships models to support infrastructure capacity addition in hospitals and primary care facilities

We have established the urgent need for Mumbai to expand its hospital infrastructure. The role of Public-Private Partnerships (PPPs) in meeting this capacity shortfall needs to be explored as is being discussed elsewhere in the country. For any such expansion, financing is critical and the nature of financing is determined by the structure and incentives which in turn drive the behaviour of different stakeholders and determine the quality of outcomes.

A) Diagnostic Centres in a Build, Own and Operate (BOO)

In order to improve the reach and access of the diagnostic facilities and to reduce the load on the larger hospitals, we recommend developing diagnostic services (providing CT scan, MRI, and sonography) based on a subsidized user charge mechanism. This model can be used to manage existing facilities in larger government hospitals where the private sector is responsible for upgrading the facilities and operating

the same at differential pricing with subsidised pricing for below poverty line patients. These services can also be clubbed with bringing together existing diagnostic facilities with newer or upgraded facilities. This would involve the private sector installing and maintaining (new/upgraded) diagnostic facilities within existing health centres/hospitals or at independent locations for public use at subsidized rates. Private sector providers will be responsible for operating the equipment, undertaking diagnostic procedures, and collection of user charges.

The range of services covered within the contract could include installation, maintenance and operation of new medical equipments such as MRI scan, ultrasound, sonography, CT scan. The payment mechanism could revolve around the private sector setting up a monthly/annual charge payment mechanism that would include a base component to cover their fixed operating costs and a variable component including consumables and maintenance charges. Private sector may be permitted to offer different user charging mechanisms based on different variables, such as, waiting periods and response time, income levels and timing. The public sector could consider contractual arrangements with tenure of 5 – 10 years.

The main advantages of this model are:

- Creation of additional capacity in the diagnostic area in targeted areas

- Ability to build a financially sustainable model through user charging and paid services

- Enhancement of existing capacity and capability in the private sector

However, while creating the project structure the government needs to create a transparent and dependable referral system and ensure the affordability and access to disadvantaged sections of society.

B) Design, Build, Finance and Operate (DBFO) Scheme

DBFO programs have been used internationally as a successful model for supporting a hospital building program both for new hospitals and for existing hospitals. We have set out below a structure of a typical DBFO scheme that is used extensively in the Europe and UK and maybe considered in the Indian context. This is helpful in creating additional facilities focussed on servicing the weaker segments with the government funding the development of capacity. The private sector may be given certain financial benefits including additional floor FSI (for expanding premium fee paying services), grant and fiscal benefits to improve the financial viability of the project.

The typical DBFO contract would include new build/partly new build/refurbished hospital buildings; installation, commissioning and lifecycle maintenance of hospital equipment; provision of information

management and technology solutions; facilities management; helpdesk and reception management. The payment is typically structured as an annual charge payable only on commencement of the entire hospital facilities and adjusted for performance and service availability standards. A typical DBFO contract is structured over a period of 25 – 30 years.

The key advantages of this programme include:

- Addresses the key need to strengthen the hospital infrastructure

- No payment from the government required upfront towards the capital expenditure

- Public resources are focused on healthcare provision rather than building management

The key risks that the government needs to consider while developing this programme is affordability to the government in an annuity driven model, building public sector procurement capability and testing the appetite of the private sector before bidding out the project. The government needs to consider improving financial viability of hospital projects through grant of commercial rights and increase in FSI allowance.

C) Maternity Care Health support system

This model is based on the Chiranjeevi Yojana scheme whereby the government offers a fixed fee for deliveries. This model will assist in bringing the extensive private sector capacity into providing necessary support and capacity to service the BPL patients. The critical success for this scheme depends on a network of identified private doctors with maternity facilities at their clinics, referral system run by health care workers, and transportation for the patients. This could also be an ideal way of servicing the slum dwellings. Under this scheme, the Gujarat government has empanelled and contracted private practising obstetricians who had smaller hospitals based on a pre-determined selection criteria. The private doctors were required to provide skilled care for deliveries for poor women referred by the health workers and the doctors are paid a pre-agreed price of each delivery reimbursed on a monthly basis.

Case Study 3: The Chiranjeevi Yojana

Chiranjeevi Yojana, Government of Gujarat

The Chiranjeevi Yojana implemented by the Government of Gujarat aims at encouraging the BPL families to improve access to institutional delivery. This is done by providing financial protection to these families

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and covering their out-of-pocket costs incurred on travel to reach the healthcare facility. The scheme also provides for financial support to the accompanying person for loss of wages. The scheme uses several mechanisms to target the BPL family. Among them, the main mechanism being used is the BPL card.

The scheme was launched as a one year pilot project in December 2005 in five backward districts viz., Banaskantha, Dahod, Kutch, Panchmahals, and Sabarkantha and covered all BPL families. The scheme has now been extended to the entire state. When the scheme was initiated the pilot districts were selected based on remoteness and included regions facing highest infant mortality and maternal mortality. The private medical practitioners (mainly gynecologists) in these regions were empanelled in the scheme to provide maternity health services. These providers are reimbursed a fixed rate for deliveries carried out by them.

These private obgyns were to provide skilled care for deliveries of poor (below poverty line) women and required comprehensive maternity care free of cost in their own hospital. In return the government would pay the doctors USD 4,500 for 100 deliveries (including handling of complications). This works out to about INR 1,795 (USD 46 per delivery). The key features of the compensation package was that even though higher amounts were used for treatment of complications to calculate the total package (for example USD 125 for cesarean section (CS) vs USD 20 for normal delivery) but in calculating overall cost per delivery a fixed rate of CS and other complications were assumed at 15 per cent.

The total direct cost of the pilot scheme was INR 110 million (USD2.75 million) for one year for 5 pilot districts. When extended to the whole state, the estimated first year cost is INR 506 million (USD12.6 million) which is just 3.6 per cent of the total health budget of INR 13,070 million. The expenditure of the scheme is being currently met from the state government fund provided by the national government under National Rural Health Mission.

D) Developing Primary health care facilities and services

In addition to "hospital" DBFO's, there is also scope for private doctor involvement in creation of the first tier of healthcare infrastructure in Mumbai. Schemes for attracting doctors into the city for setting up practices as general practitioners could be considered, which may include the following elements

1. Subsidised access to locations for practice within easy reach of the citizens. Potential locations could include other MCGC offices, PDS stores, etc.

2. Branding of centres under a common brand of trust, so that doctors find it viable to practice medicine for the poor

3. Ability to refer to other hospitals for advanced care

4. Close integration with existing primary healthcare system

Private sector can also participate in the creation of mobile primary health centres that can serve the slum residents by getting close to their residences without encountering the problem of creating government assets amongst illegal or unauthorised constructions. Bundling of geographies and solutions to provide may yield positive results. This programme should be actively supported by NGO / voluntary support groups to maximize reach and population groups difficult to access.

The other area that needs to be explored in maximising reach and coverage of primary health care services is the use of alternative medicine for non-acute and non-surgical ailments. There is a need to integrate the current alternative medicine practitioners within the mainstream delivery of primary health care services and to maximise the dissemination of information and support through these channels.

Challenge: Prevention focus

Key concern: Growing shift from curative to preventive solutions to lifestyle diseases

Potential solution: Developing a wider well being agenda through information dissemination and supporting sports and recreational facilities

Quality of life needs to be improved during the entire life-cycle of human, from "pre-natal" to "after death". "Pre-natal" needs (viz. from the healthiness of the foetus) to "after death" (viz. donation of deceased donor organs) needs to be covered well to ensure an all encompassing improvement in quality of life for citizens of Mumbai. Various steps need to be taken to ensure that our citizens maintain good health.

- Pre-natal clinics
- Enforcing vaccinations/inoculations
- Pest treatment to prevent malaria, etc.
- Importance of playgrounds (e.g. in schools), sports complexes, etc right from childhood
- Organ transplants

The City must also consider addressing the wider determinants of health by increasing the levels of physical activity in daily lives of people, such as, walking to work/ school, use of park / open spaces for active recreation, increasing opportunities for active recreation, reducing road traffic accidents through road safety education, enforcement to address speed limit abuse, seat belt usage, mobile phone use, child safety zones, accident saving schemes etc, ensuring better housing, sanitation, hygiene factors in the city meeting international standards and responding to our changing population profile as the number of older people in the city increases. The Government needs to invest in setting up and promotion of supporting infrastructure facilities to build a healthy and vibrant society in the years to come.

Healthcare and well being in Mumbai: Setting benchmarks going forward

The World Health Organisation (WHO) has stipulated an index to benchmark the health systems performance (Source: World Health Report 2000) as well as to assess the fairness of the healthcare system and reforms. The WHO index combines measures of health outcomes, system responsiveness, and the distribution of financial contributions into an overall index that ranks countries' performance comparatively. The concept of fairness in health systems is broad, integrating the goals of equity in access and financing, clinical and administrative efficiency, and accountability.

The nine benchmarks to assess the healthcare system and their corresponding key objectives are as follows:

S. No.	Benchmark	Objective
1	Inter-sectoral Public Health	Equity
2	Financial Barrier to equitable access	
3	Non-financial barrier to access	
4	Comprehensiveness of benefits and tiering	
5	Equitable financing	
6	Efficacy, efficiency and quality improvement	Efficiency
7	Administrative efficiency	
8	Democratic accountability and empowerment	Accountability
9	Patient and provider autonomy	

Source: World Health Organisation; World Health Report 2000

The Sub-Committee recommends that going forward, Bombay first along with other government organisations set about more objectively

laid out principles for assessment & delivery of health care system (as set by the WHO evaluation framework described above). This along with the national measures such as maternal mortality rate will support in developing and building an encompassing and a comprehensive healthcare delivery system in the City.

The focus of the alternative models for healthcare provisions is on achieving better outcomes inter alia healthcare and well being for the people of Mumbai with effective partnerships in place to address the health and well being challenges. This cannot be addressed by any one organisation alone. The idea therefore is to compliment the delivery plans of existing stakeholders i.e. Government of Maharashtra, MCGM, public trusts and private owners under one umbrella. In essence it envisages setting out how the partnership will ensure that together we achieve good health and well-being for Mumbai.

Lastly, aspirations for improving the healthcare and well-being cannot be delivered in isolation. The healthcare and well-being of Mumbai will be in large part determined by social, economic and environmental factors, such as, education, poverty, housing, sanitation, access to water and electricity etc. Many aspects of delivery of Bombay First strategy will therefore have an important contribution to make to improve the healthcare and well-being of Mumbai. The approach for Healthy City should therefore be based on a holistic model that incorporates the determinants of healthcare and well-being supporting wider social, economic and environmental priorities.

Appendix - A

List of Government Hospitals in Mumbai

	Name of hospital	Area	Region	Number of beds
1	Rajawadi Hospital	Ghatkopar	North	570
2	Cooper Hospital	Vile Parle	North	750
3	Govandi General Hospital	Govandi	North	220
4	MW Desai Municipal General Hospital	Malad	North	162
5	KMJ Municipal General Hospital	Vikhroli	North	130
6	J.J.Hospital	Byculla, South Mumbai	South	1,352
7	KEM Hospital	Parel	South	1,800
8	INHS Ashwini Hospital	Colaba	South	870
9	Central Railway Hospital	Byculla, South Mumbai	South	350
10	Jagjivan Hospital	Agripada, Mumbai - 8	South	250
11	ESIS Hospital	Worli	South	500
12	Mahatma Gandhi Memorial Hospital	Parel	South	700
13	Wadia Children's Hospital	Parel	South	250
14	Nawrosjee Wadia Maternity Hospital	Parel	South	305
15	Inlaksh General Hospital	Chembur	South	91
16	Police Hospital	Nagpada, Byculla Byculla	South	114
17	Police Hospital	Worli	South	35
18	Municipal Eye hospital	Byculla	South	80
19	Mehta Municipal General Hospital	Chembur	South	74
20	Nair Hospital	AnandRao Nair Road, Agripada	South (Central)	1,300
21	Sion Hospital	Sion	South (Central)	1,416
22	Lokmanya Tilak Municipal Gen Hospital	Matunga	South (Central)	832
23	St. George's Hospital	St.George Road	South	467
24	Cama and Albless Hospital	Mahapalika Marg, Azad	South	367
25	Sir Gokuldas Tejpal Hospital	LT Marg	South	521
26	BPT Hospital	Wadala	South (Central)	183
	Total beds			**13,689**

Source: KPMG Analysis, 2009

List of Private Hospitals in Mumbai

	Name of hospital	Area	Region	Number of beds
1	Nanavati Hospital	Vile Parle	North	400
2	Bhagwati Hospital	Boriwli	North	373
3	Kokilaben Dhirubhai Ambani Hospital	Andheri	North	730
4	Hiranandani Hospital	Hiranandani	North	130
5	Fortis Hiranandani Hospital	Vashi, Navi Mumbai	North	150
6	Holy Spirit Hospital	Andheri East	North	300
7	Wockhardt Hospital	Mulund	North	220
8	Godrej Memorial Hospital	Vikroli	North	110
9	Harilal Jechand Doshi Hospital	Ghatkopar	North	130
10	MK Agarwal Hospital	Mulund	North	218
11	Shatabdi Hospital	Kandivli	North	120
12	BSES MG Hospital	Andheri West	North	92
13	Maganlal Papotlal Ghatkopar hospital	Ghatkopar West	North	80
14	Lotus Eye Hospital	Vile Parle	North	50
15	Jivan Vikas Kendra	Andheri East	North	57
16	Yerla Medical trust Hospital	Navi Mumbai	North	25
17	Naval Dockyard Hospital	Powai	North	40
18	Patil Hospital	Malad	North	50
19	Asha Parekh Hospital	SantaCruz(W)	North	105
20	Pragati Hospital	Mulund	North	120
21	Bhakti vedanta hospital	Mira Road	North	100
22	Sai Kripa general hospital	Raheja township, Malad (E)	North	-
23	MGM's New Bombay Hospital	Sector 3, Vashi	North	110
24	Modi General Hospital	Vikhroli	North	100
25	National Hospital	Borivili (E)	North	100
26	Bhabha Hospital	Kurla	North	350
27	Jaslok Hospital	Peddar Road, South Mumbai	South	361
28	Breach Candy Hospital	Breach Candy	South	173
29	Poddar Hospital	Worli	South	210
30	Tata Memorial Hospital	Parel	South	588
31	Bombay Hospital	Marine Lines	South	830
32	Prince Aly Khan Hospital	Byculla, South Mumbai	South	137
33	Cumballla Hills Hospital, South Mumbai	South Mumbai	South	220
34	Bhatia General Hospital	Tardeo, Mumbai	South	374
35	Parsi General Hospital	Cumballa Hill	South	172
36	Harkisondas Hospital	Girgaum, Mumbai	South	350
37	Saifee Hospital	Charni Road, Girgaon	South	300
38	Gauridatt Mittal Ayurvedic Hospital	Churni Road, Marine Drive	South	
39	Masina Hospital	Byculla, South Mumbai	South	320
40	Haji Bachubai Eye Hospital	Parel	South	
41	Habib Hospital	Jail Road, Dongri	South	100
42	Sushrusha Hospital	Dadar	South	
43	Kalajyot Hospital Trust	Colaba	South	
44	Conwest Jain Group of Hospitals	Girgaon	South	100
45	St.Elizabeth	Malabar Hill	South	100
46	Sri Ayurveda Prachar Sanstha	Charni Road	South	100
47	Kothari Hospital	CP Tank, Kasthurba Chowk	South	73
48	Noor Hospital	Mohd Ali Rd	South	92
49	Sushrut Hospital	Chembur	South	51
50	Mumbai Mata BalSangopan Sanstha	NM Joshi Marg, Parel	South	70
51	MS Saboo Siddiqui Maternity hospital	Imamvada road	South	110
52	Lilavati Hospital	Bandra West	South (Central)	300
53	SL Raheja	Mahim West	South (Central)	230
54	Hinduja Hospital	Mahim	South (Central)	300
55	Asian Heart Institute	Bandra East	South (Central)	145
56	Asian Heart Institute	Bandra	South (Central)	225
57	Guru Nanak Hospital	Bandra East	South (Central)	130
58	KJ Somaya Medical Trust	Sion	South (Central)	500
59	Lion Tarachand Hospital	Sion West	South (Central)	100
60	Sushilaben Hospital	Sion East	South (Central)	72
61	Acworth Leprosy Hospital	Wadala	South (Central)	100
62	Harish Hospital	Nerul, navi mumbai	South (Central)	25
63	Mehta Cardiac Centre	Sion West	South (Central)	77
	Total beds			**11,295**

Source: KPMG Analysis, 2009

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