Abstracts and Reports

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Health Services in the Metropolitan Region of São Paulo[1]

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Study of the availability of health services in a huge city such as São Paulo, Brazil, is complicated by several conceptual and methodological problems. Information from such studies in Brazilian cities has usually pertained to specific groups or to the availability of some component of the health system, and cannot easily be extrapolated to the situation as a whole. Moreover, data on health services are difficult to obtain, since they are generally not available from the services themselves or from information systems.

In the first broad discussion of health problems in Brazilian metropolitan areas, sponsored by the Ministry of Health in 1975 (*1*), it was concluded that the neediest population was concentrated in peripheral areas of large cities, where health care services are generally scarce. Health care services in these areas were concluded to be quantitatively and qualitatively insufficient, given the population's density and degree of exposure to risks.

This analysis focused on the availability of health care services in the Metropolitan Region of São Paulo (MRSP), also called Greater São Paulo. The situation in the richest and most developed area of the city was compared with that in the poorest areas in order to point out the disparity in provision of health care services between these different areas.

SOCIAL AND DEMOGRAPHIC CHARACTERISTICS

São Paulo, Brazil, has a population of about 15 million inhabitants—11% of the total population of the country and 50% of the population of the state of São Paulo. At the same time, it is the largest productive area of the nation, with net revenue representing about 20% of the total national revenue (*2*).

The city comprises 38 municipalities in an area of 8.051 km^2. The central subregion of Greater São Paulo is made up of the municipalities of São Paulo and Osasco and is the most developed area of

[1]Summarized from a document prepared at the request of the World Association of Major Metropolis, and presented at its meeting 21-24 October 1986, in New York, NY, USA. A summary was also published in Spanish in the *Boletín de la Oficina Sanitaria Panamericana*, Vol. 106, No. 1, 1989, pp. 77-82.

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the metropolitan region. In 1985, the municipality of São Paulo had a resident population of 9,864,706 inhabitants, roughly 64% of the total population of Greater São Paulo.

The fast urbanization of the Brazilian population and simultaneous industrialization have led to a doubling in the proportion of the country's urban residents between 1940 and 1980—from 31.24% to 67.59% (3). A large part of the population is newly arrived in the São Paulo metropolitan region: about 35% of the people came to their present residence less than six years ago. The majority of the newcomers are from semi-urban towns, where cultural patterns are totally different from those existing in highly industrialized urban centers.

In the mid-1970s, a study was done of development in the MRSP from the perspective of the living conditions of the population. It showed that despite the area's privileged position, as illustrated by any economic indicator used, the disparity in living conditions between the economically advantaged few and the disadvantaged masses was wide and increasing. The following examples illustrate the prevalence of poor living conditions: only 4.5 m^2 of green space per inhabitant was available; only 40% of the 8,000-km local road system was paved; only 30% of the households were connected to the sewer system, and only 53% were served by the public water supply.

Greater São Paulo has about 3.6 million households, and in about half of them the quality of life is very poor. In 1984 in the municipality of São Paulo, 557,287 people were living in communities of "favelas," or slums of poorly constructed shacks. A study in the same municipality in 1980 had found that around 1.7 million persons were living in overcrowded apartment buildings or old houses known as "cortiços." It was predicted that by 1985, 2.75 million people would be living in these conditions (4).

The above-described circumstances—which were aggravated in the late 1970s and the 1980s by production stagnation and high inflation rates—have been reflected in health conditions and have given rise to or exacerbated many serious problems, among which are high population growth rates, overcrowding, high infant mortality, deaths from avoidable causes, environmental pollution, deficient sewer system, high incidence of occupational accidents, serious oral health problems, and behavioral disorders.

HEALTH STATUS INDICATORS

During the period 1978–1983, the birth rate per 1,000 inhabitants tended to decline, going from 30.11 in 1978 to 27.05 in 1983. The rate of stillbirths per 1,000 live births showed the same tendency, decreasing from 13.99 in 1978 to 11.02 in 1983, and the general mortality rate per 1,000 population fell from 7.39 in 1978 to 6.19 in 1983.

Infant mortality in Greater São Paulo has decreased from 70.55 per 1,000 live births in 1978 to 45.63 per 1,000 in 1983 (2). By 1985, this indicator had fallen to 36.0 per 1,000 (5). It is important to note that average infant mortality in the MRSP has always been higher than rates observed elsewhere in the state. Rates much higher than those for Greater São Paulo as a whole are found in some of the municipalities that comprise it. For example, in the municipality Ferraz de Vasconcelos in the eastern subregion, the rate was 182.79 per 1,000 live births; and in Santana do Parnaíba and Pirapora do Bom Jesus, both in the northwestern subregion, the rates were 99.24 and 120.48 per 1,000, respectively (2).

Another observable trend in infant mortality rates is that the rates increase as

one moves from central to peripheral municipalities (which means from the richest areas to the poorest). That is, the farther away from the central areas the people live, the greater the risk of death for infants under one year of age. This trend is strongly correlated with sanitary conditions and the availability of health care services.

Causes of Death

In 1983, the four main causes of death in children under one year old in Greater São Paulo were birth trauma and respiratory conditions of the fetus and newborn (*International Classification of Diseases*, 9th revision, 767–770), which were responsible for one-quarter of the deaths; pneumonia (480–486); other and ill-defined intestinal infections (008–009); and certain other conditions originating during the perinatal period (760–766, 771–779) (Table 1). The nature of these causes confirms that the available health services are deficient, environmental conditions are bad, and prevention activities are lacking (5).

The situation is illustrated even more clearly by the general mortality rates for the inhabitants of Greater São Paulo: at the same time that causes of death prevalent in highly industrialized societies are seen, other leading causes are more typical of poorer areas where health and sanitation systems are deficient. The three main causes of death in 1983, in order, were ischemic heart disease (410–414), malignant neoplasms (140–208), and cerebrovascular disease (430–438), but infectious diseases such as pneumonia and enteritis and other diarrheal diseases are the fourth and tenth leading causes of death, respectively (Table 2). It is worth mentioning that in the same year in Greater São Paulo, there were 3,964 homicides, accounting for 4.59% of total deaths and making homicide the seventh leading cause of death (5).

Another indicator of the precarious life and health conditions of the population is the incidence of notifiable communicable diseases. In 1985, there were 28 reported cases of typhoid fever, 605 cases of Hansen's disease, 199 of leptospirosis,

Table 1. Number, percentage of total, and rates per 1,000 live births for main causes of death in children under one year of age who were residents of the Metropolitan Region of São Paulo, 1983.

Rank	Cause groups[a]	Number of deaths	Percentage of total	Rate per 1,000 live births
1	Birth trauma and respiratory conditions of the fetus and newborn (767–770)	4,481	25.95	11.77
2	Pneumonia (480–486)	3,239	18.76	8.51
3	Other and ill-defined intestinal infections (008–009)	2,283	13.22	6.00
4	Certain conditions originating in the perinatal period (760–766, 771–779)	2,009	11.63	5.28
5	Congenital anomalies (740–759)	1,195	6.92	3.14
6	Nutritional deficiencies (260–269)	851	4.93	2.24
7	Infectious and parasitic diseases not mentioned elsewhere (001–007, 010–054, 056–139)	593	3.43	1.56
8	Meningitis (320–322)	230	1.33	0.60
9	Symptoms and ill-defined morbid states	210	1.22	0.55
10	Measles (055)	116	0.67	0.30

Source: Fundação SEADE/CIS (5).
[a]Based on *International Classification of Diseases*, ninth revision.

Table 2. Number, percentage of total, and rates for main causes of death among the general population of the Metropolitan Region of São Paulo, 1983.

Rank	Cause groups[a]	Number of deaths	Percentage of total	Rate per 100,000 inhabitants
1	Ischemic heart disease (410–414)	10,154	11.76	71.79
2	Malignant neoplasms (140–208)	10,070	11.66	71.20
3	Cerebrovascular disease (430–438)	8,219	9.52	58.11
4	Pneumonia (480–486)	6,752	7.82	47.74
5	Other forms of heart disease (420–429)	5,196	6.02	36.74
6	Birth trauma and respiratory conditions of the fetus and newborn (767–770)	4,481	5.19	11.77[b]
7	Homicides (E960–E969)	3,964	4.59	28.03
8	Accidents, excluding traffic (E800–E807, E820–E949)	3,182	3.68	22.50
9	Motor vehicle traffic accidents (E810–E819)	2,669	3.09	18.87
10	Other and ill-defined intestinal infections (008–009)	2,594	3.00	18.34

Source: Fundação SEADE/CIS (5).
[a]Based on *International Classification of Diseases*, ninth revision.
[b] Per 1,000 live births.

3,297 of meningitis, 692 hospitalized measles cases, and 3,610 cases of tuberculosis (Secretariat of Health of São Paulo, personal communication, 1986).

HEALTH SERVICES INFRASTRUCTURE

To cover the demands of Greater São Paulo as described above, the health care system had a total of 54,463 hospital beds available in 1984, or 3.7 beds per 1,000 inhabitants. Of these beds, 40,545 (2.8 per 1,000 people) were general and 13,918 (0.9 per 1,000) specialized (Table 3). The majority of beds (39,734, or 73%) belonged to the private sector. Of the total of 14,729 beds supported by the public sector, 11,053 (75.0%) were state-maintained, with the remainder about evenly split between municipal and federal government control. It should be mentioned that most private hospitals sell their services to the National Institute of Medical Services (INAMPS), an organ of the federal government, and thus are also dependent on the public sector. Also noteworthy is that all 334 beds for Hansen's disease and 545 of the 665 beds for tuberculosis are maintained by the government of the state of São Paulo. For psychiatric services, the situation is slightly different, since over half the beds belong to private, for-profit institutions. This means that of the 12,919 psychiatric beds, 6,873 (53.2%) are mostly used for acute, short-stay cases. Those requiring a longer stay, or asylum cases in general, are the responsibility of the state government and, for obvious economic and social reasons, are reserved for the poorest strata of the population.

The average availability of general beds in 1985 in Greater São Paulo was 2.7 per 1,000 inhabitants (41,001 beds), but this average is misleading because it varies widely in different subregions of the city: the index in the central subregion (the richest area) was 3.1 per 1,000 people, and in the poorest peripheral areas it was 0.4 per 1,000 (2). The data show that the southwestern and northwestern subregions have about one-eighth the beds available per inhabitant as the central subregion. There are 11 municipalities, with a total population of 512,690 inhabitants, that have no hospital beds. It is clear, therefore, that health services are

Table 3. Distribution of hospital beds in Greater São Paulo, by source of support and type of bed, 1984.

Supporting entity	Type of bed					
	Psychiatry	Tuberculosis	Hansen's disease	Total specialized	General	Total
Private	8,114	120	—	8,234	31,500	39,734
for-profit	6,873	—	—	6,873	17,447	24,320
non-profit	1,241	120	—	1,361	14,053	15,414
Governmental	4,805	545	334	5,684	9,045	14,729
federal	—	—	—	—	1,850	1,850
state	4,805	545	334	5,684	5,369	11,053
municipal	—	—	—	—	1,826	1,826
Total	12,919	665	334	13,918	40,545	54,463

Source: Hospital Assistance Coordinative Unit—SEADE (*5*).

not available near the residences of a large part of the population.

In regard to outpatient clinics and emergency care units, in 1984 Greater São Paulo had 1,351 outpatient clinics, of which 987 (73.0%) were located in the central subregion and eight (0.6%) in the northern subregion, one of the poorest. Seven municipalities of Greater São Paulo, with a population of over 340,000 inhabitants, did not at that time have any outpatient clinics. Of the 132 emergency care units in Greater São Paulo, the municipality of São Paulo alone had 94 (71.2%). In 20 municipalities, or more than half of the number that make up the metropolitan region, there were no such services available, leaving 856,728 people without emergency assistance (2). Although it was not possible to determine the number of beds available in emergency care services, the same pattern of variation in their spatial distribution as already described for hospital beds was seen. The average coverage of emergency care units in Greater São Paulo was 110,515 inhabitants per unit.

In addition to hospital beds and outpatient units, the preventive and curative health services available to the population of Greater São Paulo in June 1986 included 492 health centers of varying size and complexity. Of these, 251 were staffed exclusively by the Health Secretariat of the state of São Paulo; 65 were operated jointly by the municipal and state governments, 130 were managed by agreements between state and municipal governments, and 46 had other administrative arrangements (*6*).

Based on population estimates for 1986, there was one health center per 31,682 inhabitants. Regarding the geographical distribution of the health centers, they are generally lacking in the peripheral areas of the municipality of São Paulo and of Greater São Paulo as a whole, while the central subregion is relatively well served. The health centers are extremely diverse, not only with regard to their physical installations, but also in the services they provide and the complexity of available equipment. Some new programs that have been or are being established include health care of women and children, workers' health care, treatment of degenerative and chronic diseases, and mental health care.

CONCLUSIONS AND RECOMMENDATIONS

The problems outlined above can only be reversed by political action to improve the distribution of services, together with

environmental actions and policies to rectify the poverty and disease-producing living and working conditions present in Greater São Paulo. In addition, a coordinated effort on the part of different components of the health services could diminish the consequences of health hazards that are almost unavoidable in a metropolis such as São Paulo. This solution is based on a new plan of cooperation between public health institutions and private nonprofit ones by means of the Integrated Health Actions System, in which federal agencies (Health Ministry and the National Institute of Medical Services of the Social Welfare Ministry) and state and municipal secretariats of health work together to provide medical services, including pharmaceuticals, to the entire population.

A new model of medical and sanitary services is being developed for Greater São Paulo, with financing from the World Bank. The Metropolitan Health Program (MHP), specifically designed for metropolitan areas, has in its mandate the following guiding principles:

1. the right to health of each individual;
2. the right of the entire population to full medical and dental services;
3. the targeting of a limited population to be served by a specific basic health unit;
4. guaranteed access to health services;
5. community participation in health units;
6. planning that begins at local levels and works upward;
7. integrated interinstitutional planning.

The proposals of the MHP are based on the organization of a tier system consisting of the following components:

1. basic health units network;
2. local general hospital network;
3. outpatient units and specialized hospital network;
4. public health laboratories network
5. university hospitals;
6. specialized hospitals.

The initial strategy of the Metropolitan Health Program was to overcome quantitative and qualitative deficiencies in health services with the construction of about 100 new basic health units and about 11 hospitals, providing up to 2,400 beds in underserved areas. The basic health units will offer services to the entire population, regardless of their welfare coverage. These services will include programs developed by the Secretariat of Health and also full medical and dental services. The units will be well equipped and adequately staffed and will have decision-making authority. They will establish stronger ties between health services and the population.

The local general hospital network will serve the clients referred by the basic health unit network. These hospitals will offer services aimed at conditions and maladies whose diagnosis and treatment do not depend on advanced medical technology, such as deliveries, minor surgery, and clinical problems of both adults and children. In some areas, these hospitals will be able to offer more complex services.

At first glance, the statistics for health services in Greater São Paulo seem to indicate good availability of health care. The total numbers are misleading because they hide the unequal access to services of the peripheral population. The solution for underserved areas is to reorient health services to increase their capacity for delivering care by the establishment of an integrated system, such as the Metropolitan Health Program, which includes a system of referral.

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NIH Consensus Statement on Perioperative Red Cell Transfusions

Transfusion of red blood cells is a life-saving measure in the management of a variety of medical and surgical conditions. The AIDS epidemic has recently raised levels of apprehension among health professionals and the public regarding transmission of infectious disease via transfusion. Furthermore, there is new information about the significance of anemia in the perioperative period, that is, in the time from admission to the hospital through discharge after surgery. These developments have stimulated a reexamination of the benefits and risks of transfusion therapy.

To assess this procedure, the U.S. National Institutes of Health (NIH) held a Consensus Development Conference on Perioperative Red Cell Transfusion from 27 to 29 June 1988. Based on the scientific data presented, a consensus panel—composed of medical professionals, officials of blood-banking organizations, and the general public—drafted a consensus statement. The following is a summary of the panel's findings.

Source: World Health Organization. *Wkly Epidemiol Rec* 64(16):120–121, 1989.

Current experience suggests that patients with hemoglobin values greater than 10 g/dl rarely need perioperative transfusions. However, those with acute anemia and hemoglobin values less than 7 g/dl will frequently need blood.

No single criterion can replace good clinical judgment as the basis for a decision on the need for perioperative transfusion. Deciding whether to transfuse red cells depends on clinical assessment aided by data from laboratory tests, when indicated, to determine such factors as arterial oxygenation, mixed venous oxygen tension, cardiac output, the oxygen extraction ratio, and blood volume.

Many physicians and patients are concerned that anemia may increase perioperative morbidity, but there is no evidence that mild to moderate anemia has that effect. For example, healing is not compromised by anemia when normal blood volume is maintained.

Among the risks associated with red cell transfusion are transmission of disease agents: human hepatitis virus, human immunodeficiency virus (HIV), human T-cell lymphotropic virus (HTLV-I),