

Inequality and health in the metropolitan area of Buenos Aires

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SUMMARY: *This paper describes differences in unsatisfied basic needs and in mortality rates by age group for the 20 districts which make up the Metropolitan Area of Buenos Aires. It also describes differences in causes of death by age group between the central city (Capital Federal) and the inner and outer ring of municipalities that surround it. The paper ends with a discussion of why it is important to develop a more detailed statistical picture of health differences between districts in cities and examines also the difficulties in doing so.*

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I. INTRODUCTION

THE SUBJECT OF inequality in health conditions has been increasingly attracting attention in the past few years. This can be seen both in the area of design and execution of health policies and in the sphere of academic research. This growing interest has occurred both in the world's higher-income countries and in middle and low-income countries in the South.⁽¹⁾ In 1984, equity in individual health status and equality of access to health services became the first of the 38 regional goals of the European Office of the WHO in order to achieve the objective of "Health for All in the Year 2000". In this context, numerous studies appeared which showed the differences between the countries of Western Europe and the recently instituted countries of Eastern Europe and also the differences between the varying regions or districts within each country. Examples of this are the studies carried out in Belgium, Finland, Hungary, Italy, Norway, Poland and Spain, among others, for the seminar on "Inequities in Health" held in Lisbon in 1987.⁽²⁾ On the other hand, the improvement in infant mortality and life expectancy rates in the majority of countries in Latin America has been called into question in view of the enormous differences which exist between the various social groups in each country.⁽³⁾

The key issue is how national or city-wide health indicators can mask enormous regional differences and differences between various social groups within each country or city. From this perspective, it is important to carry out studies which identify these differences and which enable progress to be made in

1. Illsey, Raymond (1990), "Comparative review of sources, methodology and knowledge" in *Social Science and Medicine* Vol.31, No.3, pages 229-236.

2. See special issue of *Social Science and Medicine*, Vol.31, No.3, 1990.

3. Bahr J. and W. Riner (1993), "Life expectancy and infant mortality in Latin America" in *Social Science and Medicine* Vol.36, No.10, pages 1373-1382; also Curto de Casas, Isabe (1993), "Geographical inequalities in mortality in Latin America" in *Social Science and Medicine* Vol.36, No.10, pages 1349-1352; and Nuñez, Norma (1992), *Perfiles de mortalidad según condiciones de vida en Venezuela* (Mortality Profiles in Accordance with Living Conditions in Venezuela), Panamerican Health Organization.

the methodologies and instruments required for them to be identified.

In Argentina, there has been a sustained improvement in basic health indicators in recent decades. This is reflected mainly in changes in life expectancy at birth and infant mortality rates, measures which place Argentina among the best positioned countries in Latin America. From an epidemiological point of view, Argentina is closer to the epidemiological model of Western Europe and North America with a prevalence of cardiovascular diseases, tumours, and violence and trauma as the main causes of death.

This might indicate that Argentina is leaving behind the health problems typically related to poverty and is moving on to confront problems which are usually related to conditions in richer countries. However, this improved relative position conceals the fact that indicators which are useful for establishing international comparisons and relative positions between countries cannot be used to establish the health situation of the different social groups which make up the country. The national indicators overlook the heterogeneity of situations which make up the health picture of a particular population.

In this context, the objective of this work is to analyze the differences in health between the 20 districts which make up the Metropolitan Area of Buenos Aires using basic mortality data by age and causes of death. This is not intended to be a study of development and of trends in health conditions. Even a glance at the basic indicators of health and living conditions shows an improvement in health and basic service provision in the Metropolitan Area over time in line with the progress made in the country as a whole. This work is seeking to emphasize how national or city-wide indicators can conceal important differences between different areas of a city. It is obvious, moreover, that an analysis of differences in access to health and in living conditions should incorporate an analysis by social group. However, the structure of the health information system used and the quality of the recording of some of the variables used in this system make an analysis of this kind impossible. It is also not possible to identify differences in access to health services and in living conditions within the 20 districts analyzed here. Thus, all the districts of the Metropolitan Area are treated as if they were homogeneous areas when many are areas with marked social and spatial polarity within their boundaries.

The rest of this paper is divided into three parts. Section II describes the methodology employed, the sources of data used and the definitions and classifications employed. Section III presents the results of the analysis. Section IV discusses the implications of the work carried out and the limitations of the methodology and analysis, and poses some questions for the future.

II. METHODOLOGICAL CONSIDERATIONS

a. Indicators Employed

DIFFERENCES IN THE health conditions of the populations in the districts which make up the Metropolitan Area of Buenos Aires were evaluated by processing and calculating general and age-specific mortality rates and causes of death for 1991. These basic data on mortality were supplemented with information on socio-economic conditions, access to housing and basic services (education, drinking water, sanitation) and health insurance provision for the population of the different districts.

The choice of mortality rates as a measure of the population's health conditions has considerable limitations. The main one is that it provides only a partial picture of the condition of people's health in providing evidence on how many and from what they die. It says very little about the quality of life and the health of the population who does not die. These data thus underestimate the importance of diseases or injuries that have incapacitating effects and which are disproportionately high in relation to the number of deaths which they cause - as for example mental illnesses, osteoarthritis and onchocerciasis. They also underrepresent the importance of the underlying causes of death such as diabetes and undernutrition.⁽⁴⁾

The other problem inherent in the use of mortality data relates to the limitations of data produced to link more strictly epidemiological variables (for example cause of death) with those which concern the demographic and social characteristics of the household to which the dead person belongs. This limits any attempt to link the social variables with the strictly medical and biological variables at the household level. This difficulty has generally been resolved through the analysis of geographical inequalities, combining information from different sources (censuses, health statistics), but this method has two limitations. First, there is the conceptual problem that this method only allows for general correlations related to the whole populations, not to individuals, and therefore it is not possible to relate the analysis related to a specific factor with illness or death in the same person. Second, there is a methodological limitation in that, in general, the information is processed in accordance with administrative and/or operational zoning criteria which do not necessarily make it possible to identify areas where the levels of living conditions are different.

However, mortality data are the only continuous source of information for an unambiguous picture of the health situation.⁽⁵⁾ This is because the method by which it is prepared, based on the system of recording vital facts from each country, guarantees data which are comparable for the whole population and which is produced periodically. Although important differences between countries certainly exist as to the level of under-recording presented by the mortality data⁽⁶⁾, a standardized methodology of collection and classification of the information exists as can be seen in the widespread use of the International Classification of Diseases for analyzing mortality by causes.⁽⁷⁾

4. Feachem R. *et al.* (1993) *The Health of Adults in the Developing World*, World Bank, Washington DC.

5. See reference 4.

6. It is estimated that about 90 per cent of mortality data for about 72 per cent of Latin America is covered - see reference 3, Curto de Casas (1993).

7. In a study published by the World Bank concerning adult health in the Third World, it was recognized that if countries in the South developed their health policies using the information available by causes, they would be doing no more and no less than wealthier countries. With the exception of the incidence of cancer and some specific notifiable diseases, wealthier countries lack reliable data on morbidity and base their health policies on trends and differentials in the specific mortality rates by cause - see reference 4.

In addition, the data on morbidity present insuperable conceptual and technical problems that are inherent in the ways they are produced. Unlike mortality, data on morbidity refer to facts for which there is no unambiguous definition. Thus, for example, morbidity can be observable or perceived and the use of one or other can yield divergent results. In addition, unlike mortality, there is no system to collect morbidity data for the entire population. Countries generally record information on morbidity relating to the illnesses or injuries that people have who attend the public health system - and so data on morbidity are much influenced by the degree of accessibility which the different population groups have to different health care providers.

In Argentina, there is a good system for recording data on health; the vital statistics system records regular information on health conditions. This system collects basic information on deaths of the population as a whole and on live births. This allowed this study of differences between districts in mortality although the limitations mentioned above should be recognized.

The specific mortality rates by age were constructed on the basis of the classification of the population into six age categories, structured in such a way that the risk is different between each age group and similar within the same group:⁽⁸⁾

- under 1 year
- between 1 and 4 years
- between 5 and 14 years
- between 15 and 49 years
- between 50 and 64 years
- 65 years and over

The analysis also divided the infant mortality rate into two components, the neonatal mortality rate (the mortality rate for infants of less than 28 days) and the post-neonatal mortality rate (the mortality rate for infants of between 28 and 364 days).

b. Specific Mortality Rates by Cause of Death

The International Classification of Disease (9th Revision ICD-9) was used as a basis for the classification. It categorizes 999 morbid conditions which were sub-divided into five large categories. The classification criteria used for all the age groups were:

- infectious diseases
- tumours
- cardiovascular diseases
- respiratory diseases
- congenital anomalies
- violence
- others

In the case of children under the age of one, deaths were also classified in accordance with the extent to which the death could

8. Ministerio de Salud y Acción Social - INDEC (1994), *Encuesta a población: modulo de utilización y gasto en servicios de salud - aglomerado Gran Buenos Aires* (Population Survey: Pattern of Utilization and Expenditure in Health Services), Buenos Aires.

Box 1: The Classification of Causes of Infant Deaths According to Whether They Could Have Been Avoided

A classification system was developed for all deaths of infants under the age of 28 days and for infants aged between 28 and 364 days according to whether the death was avoidable, partly avoidable or unavoidable. For instance, for infants under the age of 28 days, there are causes of death that could have been avoided through proper monitoring of pregnancy (eg. tetanus) or through proper care during labour or through early diagnosis and treatment (eg. septicaemia, respiratory diseases and perinatal jaundice). Other causes of death were classified as partly avoidable (eg. nutritional deficiencies) or unavoidable (eg. congenital anomalies). A comparable system of classification was developed for infants aged between 28 and 364 days. For instance, among the avoidable causes are the diseases that are preventable by vaccination (eg. measles, diphtheria and whooping cough) and the diseases which can be addressed through early diagnosis and treatment. Others were classified as partly avoidable, unavoidable or unknown.

9. Ministry of Health and Social Action (1987), *"Agrupamiento de causas de muerte de menores de un año basado en la aplicación de criterios de evitabilidad"* ("Grouping of causes of death of infants under the age of one year based on the application of criteria of avoidability") in *Boletín del programa nacional de estadísticas de salud* No.60, November 1990.

10. INDEC (1993), *Necesidades básicas insatisfechas: evolución intercensal 1980-1991*, Ministerio de Economía y Obras y Servicios Públicos, June.

11. Defective housing includes camps, huts or dangerous housing, rented houses, bed and breakfast establishments, and those households which meet at least one of the following conditions: no provision of piped water inside the house; no flush toilet; floor of earth or other material which is not ceramic, tiles, mosaic, wood, carpet, plastic, cement or fixed brick (INDEC 1993, see note 10).

be avoided based on avoidability criteria proposed by the Ministry for Health and Social Action⁽⁹⁾ - see Box 1 for a summary.

c. Socio-economic Level

The socio-economic level of the different districts which make up the Metropolitan Area was analyzed starting from the unsatisfied basic needs indicator using the methodology developed by the National Institute of Statistics and Censuses (INDEC). This establishes that households with unsatisfied basic needs are those which do not satisfy any one of the following conditions:⁽¹⁰⁾

- households with more than three people to a room (Overcrowding);
- households which live in housing of an unsuitable type;⁽¹¹⁾
- households without a flush toilet;
- households with any child of school age who is not attending school.

d. Sources of Information Used

Two information sources were used for the construction of the mortality rates:

- The System of Vital Statistics of the Department of Health Statistics (DES) of the Ministry for Health and Social Action, from which the data bases on deaths and on live births, corresponding to the Metropolitan Area of Buenos Aires for the year 1991, were obtained on magnetic archive. Data on age, sex, date of death, cause of death and residence of the deceased were selected and also age, sex, date of birth and residence of the mother in the case of live births.
- The 1991 National Census of Population and Housing from

which information was obtained concerning the number of inhabitants in each district as well as those variables which make it possible to measure the socio-economic and educational level of the population and their level of access to basic goods and services.

e. Areas of Investigation

The Metropolitan Area of Buenos Aires is made up of the Capital Federal [Federal District] and Gran Buenos Aires [Great Buenos Aires], or Buenos Aires Conurbation, consisting of 19 districts - see Figure 1. This, in turn, is divided into two large regions, GBA1 and GBA2, by means of a modification of the classification proposed by the National Institute of Statistics and Censuses. This divides Gran Buenos Aires into two, based on the fact that the quality of housing conditions and the levels of health services and infrastructure provision generally get worse the further away a district is from the Capital Federal, the later a district was urbanized and the less its level of consolidation. Gran Buenos Aires 1 (GBA1) is the region closest to Capital Federal and is where provision of services and living conditions are better whilst Gran Buenos Aires 2 (GBA2) includes the districts furthest from Capital Federal where living conditions and access to basic services are worst. However, due to the fact that, in this study, the unsatisfied basic needs indicators are considered as the principal indicator of the living conditions of the population of each district, the composition of GBA1 and GBA2 was altered so that two relatively homogeneous regions remained with regard to the percentage of the population with unsatisfied basic needs. In this way, the Metropolitan Area of Buenos Aires was classified into three regions:

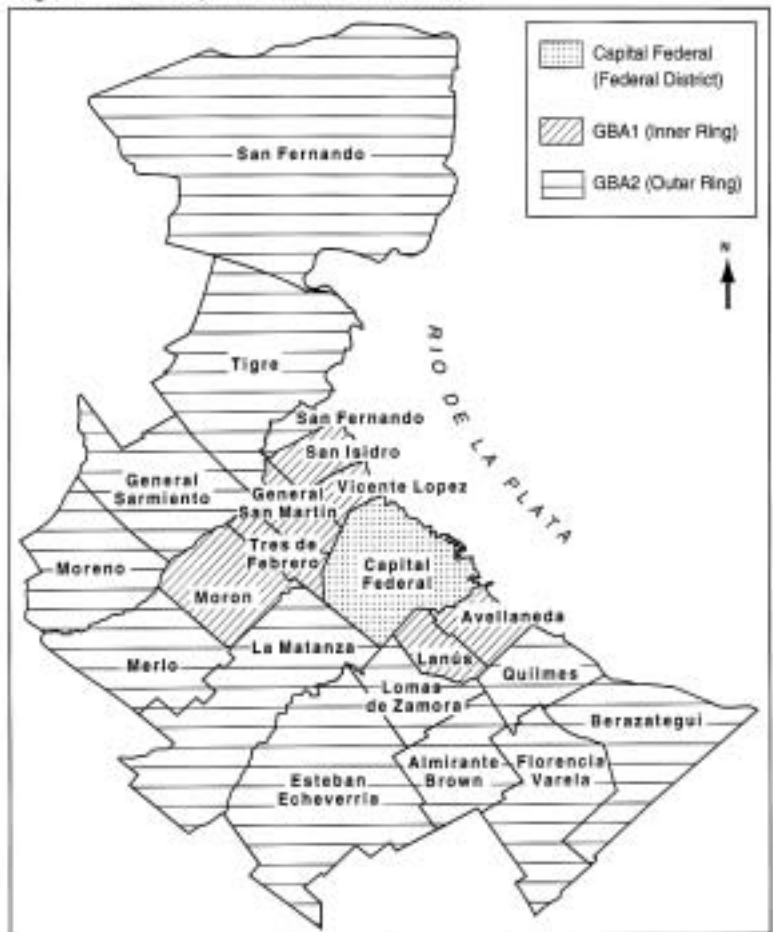
- *Capital Federal* [Federal District] which includes, within its 200 square kilometres, the historic city and the port zone.
- *Gran Buenos Aires 1*, made up of those districts with up to 15 per cent of their population with unsatisfied basic needs and which are concentrated just to the North and to the South of the Federal District: Avellaneda, General San Martín, Lanús, Morón, San Isidro, Tres de Febrero and Vicente López.
- *Gran Buenos Aires 2*, made up of those districts which have more than 15 per cent of their population with unsatisfied basic needs: Almirante Brown, Berazategui, Esteban Echeverría, Florencio Varela, General Sarmiento, Lomas de Zamora, La Matanza, Merlo, Moreno, Quilmes, San Fernando and Tigre.

Although each district is made up of localities and quarters which, in turn, have considerable differences in terms of living and health conditions, the data from the data base of deaths do not permit a level of disaggregation below the district level. This means that the lowest level of disaggregation used for the analysis is the municipality (district).

III. LIVING AND HEALTH CONDITIONS IN THE METROPOLITAN AREA OF BUENOS AIRES

THE METROPOLITAN AREA of Buenos Aires is located in the province of Buenos Aires at the mouth of the Rio Plata (literally the Silver River, although usually known in English as the River Plate). It is the principal urban agglomeration in Argentina both because of its role in the economic structure of the country and because of the population concentrated there. It is also one of the world's largest cities with 10.9 million inhabitants in 1991. The Metropolitan Area is made up of the Capital Federal and 19 districts (see Figure 1) and these hold some 34 per cent of Argentina's total population in an area of 3,880 square kilometres.

Figure 1: The Metropolitan Area of Buenos Aires



The Metropolitan Area can be divided into the Capital Federal with 27.1 per cent of the population in 1991, and two large regions, GBA1 (with 25.6 per cent) and GBA2 (with 47.3 per cent). Table 1 gives the distribution of the population between the Capital Federal and each of the districts which make up these regions.

In socio-economic terms, these three regions are well differentiated, Capital Federal being the district with the best living conditions. Table 2 gives details of the proportion of the population by district with unsatisfied basic needs and includes further details of the percentage living in inadequate housing, in housing without flush toilets and without health insurance. Figure 2 shows the percentage of the population in each district with unsatisfied basic needs and the distribution of population with unsatisfied basic needs. This indicates that it is not necessarily the districts with the lowest proportion of people with unsatisfied basic needs that have the lowest concentration of

Table 1: Metropolitan Area of Buenos Aires: Total Population, Area and Density by District, 1991

District	Total population	Area (sq. km.)	Density (inhabitants per sq.km.)
TOTAL for Argentina	32615528	2780400	11.7
TOTAL for Buenos Aires Metropolitan Area	10934727	3880	2818.2
Capital Federal	2965403	200	14827.0

Gran Buenos Aires (GBA) 1	2801818	420	6671.0
Avellaneda	344991	55	6722.6
General San Martin	406809	56	7264.5
Lanús	468561	45	10412.6
Moron	643553	131	4912.6
San Isidro	299023	48	6229.7
Tres de Febrero	349376	46	7595.2
Vicente Lopez	289505	39	7423.2

Gran Buenos Aires (GBA) 2	5167506	3260	2165.6
Almirante Brown	450698	122	3694.2
Berazategui	244929	188	1302.8
Esteban Echeverria	275793	377	731.6
Florencio Varela	254997	206	1237.9
General Sarmiento	652969	196	3331.5
Lomas de Zamora	574330	89	6453.1
La Matanza	1121298	323	3471.5
Merlo	390858	170	2299.2
Moreno	287715	180	1598.4
Quilmes	511234	125	4089.9
San Fernando	144763	924	156.7
Tigre	257922	360	716.5

SOURCE: National Census of Population and Housing, 1991. INDEC.

people with unsatisfied basic needs. For instance, the Capital Federal has among the lowest percentages of households and among the highest concentration of households with unsatisfied basic needs.

Figure 3 shows the variation between districts for some of the indicators used to make up the unsatisfied basic needs index. These show the different conditions in these three regions with GBA2 being the region which clearly has worse living conditions and worse levels of health insurance provision. The Capital Federal and the two municipalities to its North (Vicente Lopez and San Isidro) have among the lowest proportions of households with unsatisfied basic needs in aggregate and with regard to the indicators shown in Figure 3.

IV. MORTALITY IN THE METROPOLITAN AREA OF BUENOS AIRES

a. General Mortality

THE GENERAL MORTALITY rate of the Metropolitan Area of Buenos Aires for 1991 was 8.7 per 1,000, a figure close to the national rate of 7.8 per 1,000. However, this figure conceals considerable differences between the three regions: the Capital Federal had a general mortality rate of 12.1 per 1,000 while GBA1 and GBA2 had rates of 9.3 and 6.5 per 1,000 respectively - see Table 3.

Figure 4 shows the distribution of general and age specific mortality rates by district (per 1,000 inhabitants) in 1991. The

Figure 2: The Geographic Spread of the Population with Unsatisfied Basic Needs

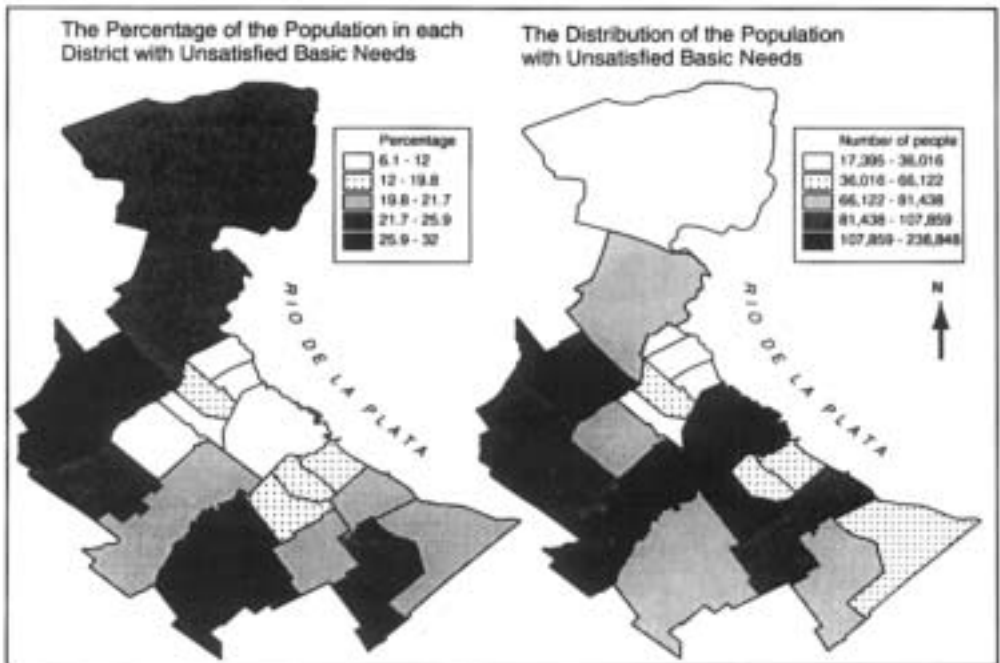


Table 2: The Proportion of the Population in the Metropolitan Area of Buenos Aires with Unsatisfied Basic Needs by District

District	Percentage of the population with unsatisfied basic needs	Percentage of the population with inadequate housing	Percentage of housing without flush toilets	Percentage of the population without coverage for health services
TOTAL for Argentina	29.0	7.0	14.20	36.4
TOTAL for Buenos Aires Metropolitan Area	25.5	5.9	7.20	36.1
Capital Federal	5.1	2.0	2.20	19.5

Gran Buenos Aires (GBA) 1				
Avellaneda	12.7	3.5	4.20	30.3
General San Martin	17.5	4.8	5.30	35.5
Lanús	15.0	4.2	3.70	33.7
Moron	16.6	3.4	4.00	32.7
San Isidro	9.7	2.8	3.00	25.1
Tres de Febrero	10.5	3.2	3.40	33.4
Vicente Lopez	5.5	1.5	1.80	20.1

Gran Buenos Aires (GBA) 2				
Almirante Brown	32.7	7.7	9.00	40.4
Berazategui	24.6	8.7	6.70	38.9
Esteban Echeverria	46.1	10.5	13.00	44.2
Florencio Varela	53.2	13.0	16.90	47.5
General Sarmiento	43.6	9.7	11.00	43.3
Lomas de Zamora	28.1	6.9	7.90	36.9
La Matanza	33.8	7.4	7.80	43.2
Merlo	43.5	9.1	9.90	44.7
Moreno	48.6	11.1	12.20	49.4
Quilmes	24.7	6.9	6.90	34.6
San Fernando	28.4	6.8	11.70	38.7
Tigre	36.2	8.3	10.00	43.2

SOURCE: SIEMPRO on the basis of the National Census of Population and Housing, 1991, INDEC.

map of the general mortality rate shows how the rate within GBA1 varies between 7 and 9.7 per 1,000, with the exception of Avellaneda which has a rate of 14.3 per 1,000. In GBA2, the figures range from 5 to 6.5 per 1,000. In this region, the cases of San Fernando, Lomas de Zamora and Quilmes stand out with general mortality rates of 10, 8.3 and 7 per 1,000 respectively.

The analysis of general mortality according to causes of death shows a predominance of cardiovascular diseases in the Metropolitan Area - see Table 4. In second place come tumours followed by diseases which are classified as "other causes", respiratory diseases, violence, infectious disease and, lastly, congenital anomalies. The distribution of the causes of death is maintained when each of the regions which make up the Metropolitan Area is analyzed separately although some differences do exist as to the weight of each group of causes within each region - see Box 2.

Figure 3: The Percentage of the Population in Each District with Inadequate Housing, In Housing Without Flush Toilets and Without Health Insurance

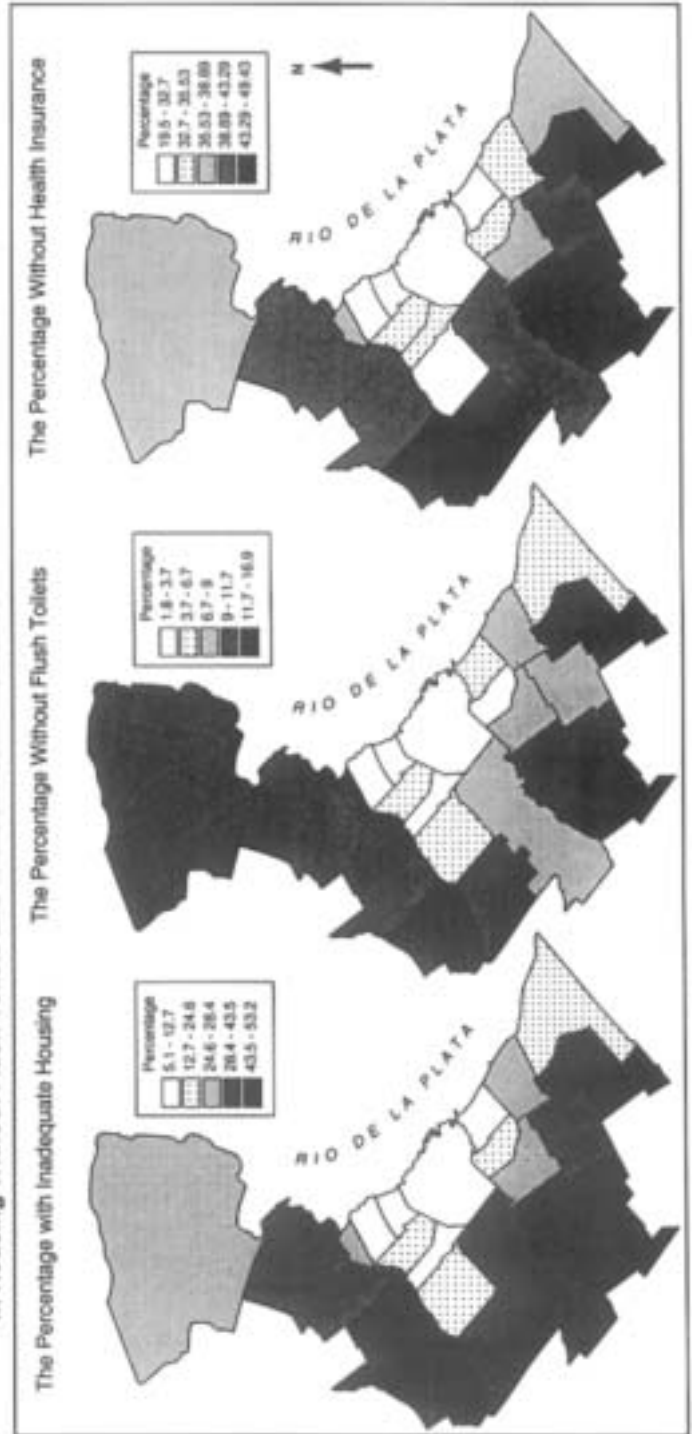


Table 3: General Mortality Rates for the Three Regions That Make Up the Metropolitan Area of Buenos Aires (per thousand inhabitants, 1991)

Area	Deaths in 1991	Population	General mortality rate
Capital Federal	35,888	2,965,403	12.1
Gran Buenos Aires (GBA) 1	25,938	2,801,818	9.3
Gran Buenos Aires (GBA) 2	32,934	5,167,506	6.4

SOURCE: Own analysis on the basis of data from Ministry of Health and Social Action.

Thus, if we take general mortality, we observe a similar distribution pattern of causes of death in the three regions with percentage differences with respect to the specific weight of each group of causes in each region. However, the analysis of the differences in general mortality says little about differences in the health situation in each district. When all deaths corresponding to all age groups are combined in a single measurement, the general mortality rate tends to be higher in those population groups with greater socio-economic development due to the larger relative proportion of persons in the highest age groups. This fact means that - with the classification of causes of death used in this study - causes of death corresponding to the higher age groups are over-represented in the general mortality rate.

Box 2: Differences in the Most Common Causes of Death between the Capital Federal, the Inner Ring of Gran Buenos Aires 1 and the Outer Ring of Gran Buenos Aires 2

Cardiovascular diseases carry greater weight within GBA1 (52.1 per cent) and less weight in GBA2 (46.3 per cent).

The percentage corresponding to tumours is higher in Capital Federal (19.3 per cent) and lower in GBA2 (18.8 per cent).

Respiratory diseases have the greatest weight in Capital Federal (7.1 per cent) and the lowest in GBA1 (5.7 per cent).

Violence (which includes traffic accidents) presents dissimilar figures in each region, with a difference of more than three points between GBA2 (7.9 per cent) and Capital Federal (3.6 per cent). GBA1 has an intermediate figure, with 6.2 per cent.

Infectious diseases show homogeneous figures in the three areas, fluctuating around 3 per cent.

Congenital anomalies are most frequent in GBA2 (1.7 per cent) and lowest in Capital Federal, with 0.4 per cent.

Table 4: General Mortality by Causes of Death (in percentages) by areas, 1991

Area	Congenital anomalies	Cardio-vascular diseases	Infectious diseases	Respiratory diseases	Tumours	Violence	Others	Total
	%	%	%	%	%	%	%	%
Gran Buenos Aires (GBA) 1	232	13516	732	1471	4885	1343	3530	25709
	0.9	52.1	2.8	5.7	18.8	5.2	13.6	100.0
Gran Buenos Aires (GBA) 2	564	15260	996	2057	5647	2589	5526	32639
	1.7	46.3	3.0	6.2	17.1	7.9	16.8	100.0
Capital Federal	133	17942	1126	2561	6933	1303	5890	35888
	0.4	49.9	3.1	7.1	19.3	3.6	16.4	100.0
TOTAL (for the whole metropolitan area)	796	46718	2854	6089	17465	5235	14946	94103
	0.8	49.3	3.0	6.4	18.4	5.5	15.8	100.0

SOURCE: Own analysis on basis of information supplied by the Ministry of Health and Social Action.

The different states of health can be analyzed in greater depth from the analysis of the age-specific rates because, in this way, it is possible to analyze the differential situations of the different at-risk groups. An analysis of specific mortality rate by age and cause of death is presented below.

b. Infant Mortality

The basic indicator for analyzing mortality among infants (those under one) is the infant mortality rate (IMR). This is also recognized as one of the best indicators for showing up situations of poverty and poor living conditions as poor housing conditions, lack of basic services and inadequate incomes which result in inadequate food for infants show up in higher IMRs.

In Argentina, the trend in the IMR has been a continuous improvement in the last few decades, from a rate of 33 per 1,000 live births in 1980 to 24.7 per 1,000 in 1991. The IMR for Buenos Aires Metropolitan Area in 1991 was 22.1 per 1,000 live births, a figure close to the provincial average (24.2 per 1,000) and that of the country (24.7 per 1,000). However, an analysis of the IMRs broken down to the level of each of the three large regions which make up the Metropolitan Area shows great differences between these (see Table 5). Whilst the Capital Federal has the lowest IMR for the whole area (15.2 per 1,000), the rates for GBA1 and GBA2 are considerably higher with 21.6 and 24.7 per 1,000, respectively. In two of the districts in GBA2 (San Fernando to the North and Florencio Varela to the South), the rate exceeded 30 per 1,000 live births which is almost twice the rate in the Capital Federal - see map in Figure 4.

The differentiation of the IMR into neonatal and post-neonatal mortality rates shows in greater detail the inter-district differences in infant health. Neonatal mortality is generally linked to problems of pregnancy, delivery and/or newborn infant, whereas environmental and quality of life problems of the households to which the infant belongs are considered to be the main influences on post-neonatal mortality.⁽¹²⁾

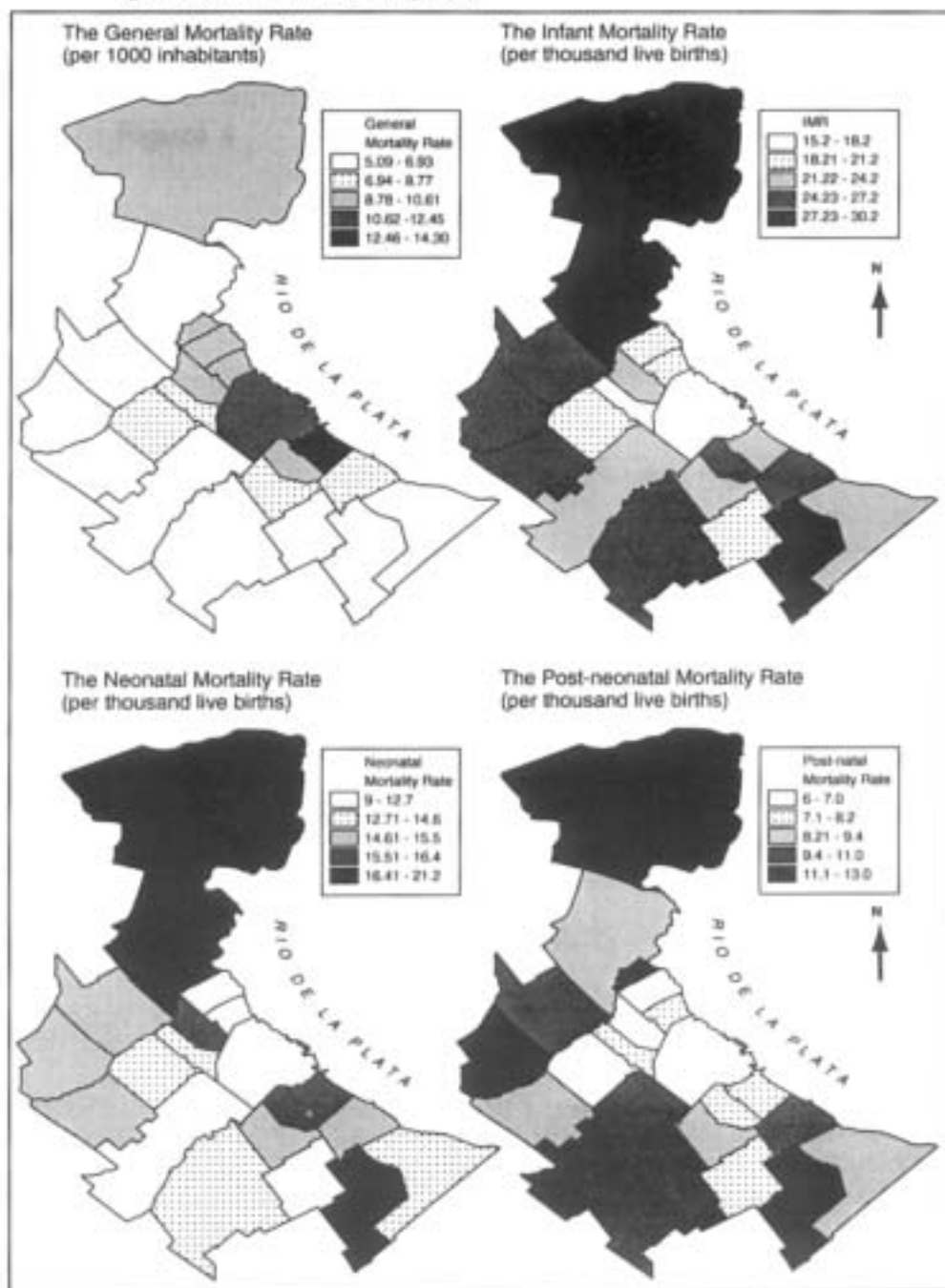
The neonatal mortality rate (NMR) is roughly the same for GBA1 and GBA2, but 40 per cent higher than for the Capital Federal. However, in both GBA2 and Capital Federal, neonatal mortality represents approximately 60 per cent of the deaths of children under the age of one whilst in GBA1 this percentage is almost 70 per cent.

However, the post-neonatal mortality rate (PMR) is lower in Capital Federal with 5.7 per 1,000. The greatest difference can be found between this district and GBA2 which has a rate that is 80 per cent higher than that in Capital Federal.

An analysis of the IMR by causes classified in accordance with criteria of avoidability (see Box 1) shows that GBA2 has the highest IMR figure for avoidable causes (12.5 per 1,000), 140 per cent higher than in Capital Federal which has the lowest level, with 5.2 per 1,000. This is evident in Figure 5. Likewise, GBA2 has the highest mortality rate for partly avoidable causes (see Figure 5) although differences with the other two regions are not great. If we combine the mortality rate corresponding to

12. Ministerio de Salud y Acción Social (Ministry of Health and Social Action) (1992), *Módulo de utilización y gasto en servicios de salud. Aglomerado Gran Buenos Aires, situación sanitaria de los menores de un año. Cifras definitivas* (Pattern of use and expenditure in health services. Greater Buenos Aires Agglomeration, Health Circumstances of the Under one-year olds. Definitive figures), Series 10, No.5, Buenos Aires, December.

Figure 4: The Distribution of General and Age Specific Mortality Rates by District (per thousand inhabitants), 1991



avoidable causes and partly avoidable causes, GBA2 is again the region with the highest figure, 100 per cent higher than that in Capital Federal and almost 50 per cent higher than that in GBA1 (16.5, 8.5 and 11.5 per 1,000 respectively).

It is thus obvious that GBA1 and GBA2 are the two regions with the worst levels of infant mortality compared to Capital Federal although there are differences between these two regions, GBA1 being generally better positioned than GBA2. However, the analysis of IMRs within each district shows great differences between the districts - see Figure 5.

Table 5: Infant, Neonatal, and Post-neonatal Mortality Rates by District, 1991.

District	Population	Live births	Deaths < 1 year	IMR	Deaths < 28 days	NMR	PMR
Gran Buenos Aires (GBA) 1	2801818	44967	973	21.64	658	14.63	7.01
Avellaneda	344991	6015	138	22.94	94	15.63	7.32
General San Martin	406809	6993	153	21.88	111	15.87	6.01
Lanús	468561	7605	187	24.59	125	16.44	8.15
Moron	643553	10310	216	20.95	146	14.16	6.79
San Isidro	299023	4722	93	19.70	60	12.71	6.99
Tres de Febrero	349376	5611	113	20.14	76	13.54	6.59
Vicente Lopez	289505	3711	73	19.67	46	12.40	7.28

Gran Buenos Aires (GBA) 2	5167506	108768	2704	24.86	1585	14.57	10.29
Almirante Brown	450698	9348	185	19.79	111	11.87	7.92
Berazategui	257922	5946	176	29.60	126	21.19	8.41
Esteban Echeverria	244929	5014	113	22.54	70	13.96	8.58
Florencio Varela	390858	8824	220	24.93	137	15.53	9.41
General Sarmiento	574330	9982	241	24.14	147	14.73	9.42
Lomas de Zamora	652969	14225	371	26.08	219	15.40	10.69
La Matanza	511234	10086	259	25.68	150	14.87	10.81
Merlo	275793	6181	157	25.40	90	14.56	10.84
Moreno	1121298	23190	523	22.55	269	11.60	10.95
Quilmes	287715	6958	188	27.02	108	15.52	11.50
San Fernando	144763	2950	89	30.17	55	18.64	11.53
Tigre	254997	6064	182	30.01	103	16.99	13.03

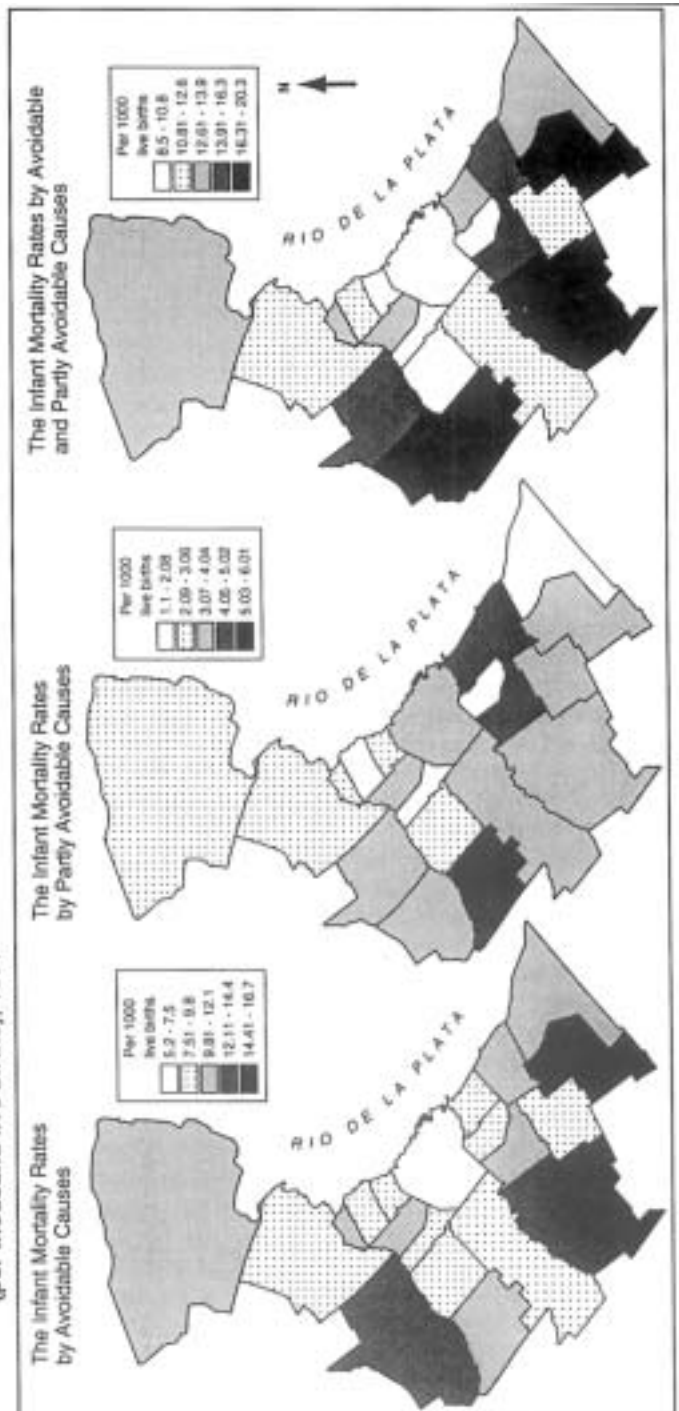
Capital Federal	2965403	39703	605	15.24	358	9.02	5.71

SOURCE: Own analysis based on data from the Ministry of Health and the 1991 CNPV.

c. Gran Buenos Aires (GBA) 1

The districts in this region present IMRs with figures which fluctuate around the overall IMR for the region, the gap between the highest rate (Lanús) and the lowest (San Isidro and Vicente López) being approximately 25 per cent. Lanús shows a figure closer to the average for GBA2 and, likewise, has the highest

Figure 5: The Distribution of the Infant Mortality Rates by Avoidable and Partially Avoidable Causes (per thousand live births), 1991



post-neonatal mortality with 16.4 per 1,000 live births. However, it should be noted that some districts present a high percentage of unknown causes of death, which has to be considered when drawing any conclusions.

The analysis of IMR by cause of death classified in accord-

ance with criteria of avoidability (see Figure 5) reveals that all the districts of GBA1 have IMR figures for avoidable causes which fluctuate around the average for the region with the exception of Lanús and General San Martín which, with rates of 9.6 and 10.3 per 1,000 respectively, are approximately 20 per cent higher than the average. The latter district also has the highest IMR for avoidable and partly avoidable causes (13.7 per 1,000) together with Avellaneda which has a rate of 13.1 per 1,000 live births.

On the other hand, the neonatal mortality rate for criteria of avoidability shows again that the worst positioned districts are Lanús and General San Martín, followed by Avellaneda. San Isidro has the lowest NMR for avoidable and partly avoidable causes and also the lowest for avoidable causes only.

In the districts which belong to GBA1, the Post-neonatal Mortality Rate (PMR) for avoidable and partly avoidable causes is half that in GBA2. The same difference remains if only the PMRs corresponding to avoidable causes are considered, as the very low figure for the district of Tres de Febrero shows (two, while the rate for most districts in GBA2 is over five).

d. Gran Buenos Aires (GBA) 2

In this region there is a big difference between the figures in the different districts which can be grouped together in four ranks:

- IMR less than 20 per 1,000; Almirante Brown, with 19.8 per 1,000, falls into this category;
- IMR between 22 and 24.9 per 1,000; four districts fall into this category, namely Berazategui, La Matanza, Lomas de Zamora and Merlo;
- IMR between 25 and 27 per 1,000; four districts fall into this category, namely E. Echeverría, Quilmes, General Sarmiento and Moreno; and
- the districts with a higher IMR, namely Tigre, Florencio Varela and San Fernando with 29.6, 30.0, and 30.2 per 1,000, respectively.

Between the district with the lowest IMR (Almirante Brown) and San Fernando, with the highest IMR, there is a gap of nearly 52 per cent. Furthermore, Florencio Varela and San Fernando have the highest PMR, together with the district of Moreno, with 13.0, 11.5 and 11.5 per 1,000, respectively. Tigre has the highest NMR in the region (21.2 per 1,000) followed by San Fernando (18.6 per 1,000) and Florencio Varela (17 per 1,000). The other districts fluctuate approximately around the rate for the region. The IMR from avoidable and partly avoidable causes shows that Florencio Varela is the district with the worst conditions, with a rate of 16.7 per 1,000 for avoidable causes and 20.3 per 1,000 for avoidable and partly avoidable causes. San Fernando and Tigre, two of the districts with a higher IMR, have relatively low figures (13.9 and 11.9) which can, to a large extent, be explained by the high proportion of deaths which fall into the "unknown"

category, revealing that these districts have serious problems with the recording of information on causes of death. The fact that the district with the lowest rate of avoidable deaths, La Matanza (8.7 per 1,000), has nearly half the rate of Florencio Varela (16.7 per 1,000) shows the enormous inequality which exists within GBA2. Tigre and La Matanza are the districts which reflect better conditions since they have the lowest IMRs for criteria of avoidability with 9.4 and 8.6 per 1,000 (avoidable) and 11.9 and 11.8 per 1,000 (avoidable and partly avoidable), respectively.

With regard to neonatal mortality by avoidable and partly avoidable causes, differences between districts for avoidable causes are not great, with the exception of Florencio Varela which has the highest figure, and with a very small rate corresponding to partly avoidable causes. San Fernando and Tigre have low figures which are explained by the large proportion of unknown causes, as already mentioned. Merlo, Moreno and Lomas de Zamora have the highest NMR for avoidable and partly avoidable causes mainly on account of avoidable mortality. La Matanza and Almirante Brown have low figures in all three rate categories.

In conclusion, for neonatal mortality from avoidable and partly avoidable causes, differences between the average rate by criteria of avoidability are not large in GBA1 and GBA2 but there are important differences within each region. The following groups of districts can be drawn up (the districts of Tigre and San Fernando are not included in this classification, because of the high proportion of unknown causes):

- Districts with low NMRs for avoidable and for partly avoidable causes: Vicente López, Tres de Febrero and San Isidro in GBA1, and Almirante Brown and La Matanza in GBA2.
- Districts with high NMRs for avoidable and for partly avoidable causes: Lanús, General San Martín and Avellaneda in GBA1 and Florencio Varela in GBA2.
- Districts with NMRs for avoidable and for partly avoidable causes close to the zonal average for both rates: Morón in GBA1, Berazategui, Esteban Echeverría and Quilmes in GBA2.
- Districts with NMRs close to the average for the region but with relatively higher figures for criteria of avoidability due mainly to a higher rate for partly avoidable causes; Lomas de Zamora, Merlo and Moreno in GBA2.

On the other hand, post-neonatal mortality by criteria of avoidability shows substantial differences between the three regions with rates of 1.8, 3.5 and 6.1 per 1,000 for Capital Federal, GBA1 and GBA2, respectively although the high proportion of unknown causes in the Capital Federal has to be noted. These differences remain if we consider avoidable deaths separately from partly avoidable ones.

In GBA1, the high figure for the rate of avoidable causes for San Isidro is striking when compared to the other districts. The other districts have figures around the average with the exception of Tres de Febrero which has a rate slightly higher than

that of Capital Federal. The figures for the rates for partly avoidable causes are practically negligible.

Again, in GBA2, great differences can be seen between the better and worse positioned districts. Florencio Varela has the highest rate, both for avoidable causes and for partly avoidable causes, which means that the combined rate is much higher than that for the remaining districts. Esteban Echeverría, General Sarmiento, Moreno and San Fernando have figures higher than the average for the region and the other districts have rates below this figure.

In this sense, in relation to mortality in children under the age of one, a large gap can be seen between the situation in Capital Federal, which has the lowest IMR figures, and in GBA1 and GBA2. Children in GBA2, under the age of one, have a greater risk of death before the end of their first year of life than those in GBA1. This difference between regions remains if one analyzes IMRs for avoidable and partly avoidable causes and the distribution of the neonatal and post-neonatal rates although the differences between GBA1 and GBA2 for neonatal mortality are not significant. Within GBA1 and GBA2, the gap between the districts is generally more marked in the case of GBA2.

e. Children Aged between One and Four Years

The mortality rate for children of aged between one and four shows that the risk of death for this age group - called "the adolescents of paediatrics"⁽¹³⁾ - is lower for GBA1 (6.7 per 10,000) in comparison with Capital Federal (8.0 per 10,000) and GBA2 (8.4 per 10,000). This implies that the risk of death in this age group is least in GBA1.

Within GBA1, Avellaneda and Lanús are the districts with the highest levels (8.5 and 8.0 per 10,000, respectively, 50 per cent more than Tres de Febrero and Vicente López, the districts with the lowest figures (4.6 and 4.5 per 10,000, respectively).

In GBA2, one can see a large gap between the lowest rate, for Berazategui (5.3 per 10,000), and Esteban Echeverría with 10.5 per 10,000. Other districts with high levels are Lomas de Zamora, La Matanza and San Fernando with 9.3, 9.8 and 9.9 per 10,000 respectively. Florencio Varela, one of the districts with a very high IMR, has one of the lowest mortality rates for children between the ages of one and four (5.8 per 10,000).

The analysis of mortality by causes⁽¹⁴⁾ (see Table 6) shows that, both in GBA1 and in GBA2, "violence" predominates as the first cause of death⁽¹⁵⁾ although GBA2 has a higher rate than GBA1. In the latter, "respiratory diseases" have a somewhat greater weight than "cardiovascular disease" (second and third causes of death) but the relative figures are similar and do not appear to mark a significant difference. In Capital Federal, on the other hand, cardiovascular diseases take first position followed by those classified as "others", leaving "violence" in third place.

It is clear that the differences observed between these three regions for mortality in this age group contradict the figures expected, given their socio-economic characteristics. With Capital Federal having higher figures than GBA1, and being closer

13. This description is due to the fact that children of this age are experiencing a stage of transition which runs from complete dependence on those who look after them to environmental risk factors since they are exposed to numerous injuries (accidents, contact with contaminating materials, ingestion of toxic substances) and without the rigorous protection which they received at their previous stage.

14. Some of the differences between the total rates for each region are due to the fact that cases for which the cause of death was a "missing value" (i.e. not known) were not considered for the analysis.

15. Although the analysis carried out does not make it possible to differentiate between types of disease within each group of causes, a study carried out by the Health Statistics Division of the Ministry of Health and Social Action showed that, in 1989, for children in this age group, traffic and domestic accidents accounted for 45 per cent of violence in Capital Federal, 35 per cent in GBA1 and 38 per cent in GBA2.

Table 6: Mortality by Causes for the Population Aged Between 1 and 4 Years in 1991

GBA1	Deaths	Rate	%	Population
Total	116	6.55	100.00	176979
Violence	26	1.47	22.41	
Respiratory diseases.	21	1.19	18.10	
Cardiovascular diseases	20	1.13	17.24	
Others	20	1.13	17.24	
Infectious diseases	13	0.73	11.21	
Congenital anomalies	11	0.62	9.48	
Tumours	5	0.28	4.31	
GBA2	Deaths	Rates	%	Population
Total	369	8.23	100.00	448191
Violence	99	2.21	26.83	
Cardiovascular diseases	60	1.34	16.26	
Respiratory diseases	56	1.25	15.18	
Others	53	1.18	14.36	
Infectious diseases	37	0.83	10.03	
Congenital anomalies	34	0.76	9.21	
Tumours	30	0.67	8.13	
CAPITAL FEDERAL	Deaths	Rates	%	Population
Total	116	7.99	100.00	145252
Cardiovascular diseases	34	2.34	29.31	
Others	26	1.79	22.41	
Violence	16	1.10	13.79	
Respiratory diseases	13	0.89	11.21	
Infectious diseases	11	0.76	9.48	
Tumours	8	0.55	6.90	
Congenital anomalies	8	0.55	6.90	

SOURCE: Own analysis on the basis of data supplied by the Ministry of Health and Social Action.

16. See Ministry of Health (1994) for more details of the classifications of death in children between the ages of one and four years in accordance with criteria of avoidability.

17. The mortality rate is calculated by place of residence and, therefore, any alteration in the recording of this variable produces differences in the resulting rates.

to GBA2, one might suppose that living conditions exist in the first district which have a direct effect on the age group resident there (e.g. traffic accidents). However, analysis of mortality by cause shows that the difference between these two areas resides basically in the greater proportion of deaths from cardiovascular diseases which are not directly linked to living conditions; according to the classification of criteria of avoidability for children of this age, they come within the category of non-avoidable deaths.⁽¹⁶⁾ One may assume that there are probably problems of recording of the mortality data for this age group which would mean that deaths of children living in GBA1 and/or GBA2, but who attended hospitals in Capital Federal where they died, were recorded as residents of Capital Federal⁽¹⁷⁾ causing an overestimate of mortality in this age group in this region.

f. Population Aged between Five and 14 Years

The mortality rate in the population of five to 14-year olds for the Metropolitan Area of Buenos Aires was 28.0 per 100,000 in 1991, a figure five points lower than that for the whole country for the same year (which was 33.4 per 100,000) and two points

below the figure for the province of Buenos Aires. Of the three regions which make up the Metropolitan Area, GBA1 and Capital Federal have the highest figures with 29.8 and 28.9 per 100,000, respectively against a rate of 26.9 for GBA2.

Within GBA1, the situation in Avellaneda is striking: there is a rate of 50.8 per 100,000 which is more than three times the rate of Vicente López, the district with the lowest rate (16.4 per 100,000). Tres de Febrero, Morón and Lanús also have relatively low rates, lower in every case than the average for the region. The rates for San Isidro and General San Martín are approximately twice that for Vicente López but not as high as that for Avellaneda. Given that Avellaneda is one of the districts with better living conditions, this fact may be explained by the hypothesis that this district is taking people from other districts and that, because of problems in recording the residence of persons who have died, a rise occurs in that particular rate.

In GBA2, the rates fluctuate around the regional average with the obvious exception of Esteban Echeverría, which has the lowest rate in GBA2 (11.3 per 100,000), and Moreno which, with a rate of 45.4 per 10,000, has the highest figure, four times higher than the lowest. In this case, what has been hypothesized for the case of Avellaneda is valid for Moreno although this district has worse living conditions. However, the differences in mortality rates depend not only on living conditions but also on factors such as access to health services and quality of care. For example, a district with a low socio-economic level but a good health services infrastructure might have high mortality levels if it takes people from other districts and if problems exist in the recording of mortality data. It is obvious that, on the basis of the data available, it is very difficult to reach any conclusion. But it is important to note the need to supplement the analysis of mortality indicators with studies of provision and accessibility of health services in each district so as to be able to establish in the different cases the contribution of the movement of the population seeking attention between the different providers existing in each region.

With regard to causes of death⁽¹⁸⁾ (see Table 7), both in Capital Federal and in GBA1 and GBA2, "violence" predominates as the first cause of death (with similar rates in all three cases but slightly higher in GBA1). However, GBA2 is the region which has the highest proportion of violent deaths in relation to the total (41 per cent). "Tumours" are the second cause although there is practically a two point difference between Capital Federal (6.5 per 100,000) and GBA2 (4.8 per 100,000). Similarly, in Capital Federal, cardiovascular diseases occupy third place whilst in GBA1 and GBA2 this position is occupied by diseases which come under the "others" category. Respiratory and infectious diseases do not appear to be an important problem at this level of disaggregation although the "infectious diseases" rate is comparatively higher in GBA1 than in the other two regions and "respiratory diseases" are of greater importance in Capital Federal, with a rate approximately twice that of GBA1 and GBA2 (2.4, 1.9 and 1.2 per 100,000, respectively).

The five to 14 year age group includes two clearly differenti-

18. Some of the differences between the total rates for each region are due to the fact that cases for which the cause of death was a missing value were not considered for the analysis.

Table 7: Mortality by Causes for the Population Aged Between 5 and 14 Years in 1991

GBA1	Deaths	Rate	%	Population
Total	141	29.86	100.00	472189
Violence	54	11.44	38.30	
Respiratory diseases.	26	5.51	18.44	
Cardiovascular diseases	25	5.29	17.73	
Others	19	4.02	13.48	
Infectious diseases	9	1.91	6.38	
Congenital anomalies	4	0.85	2.84	
Tumours	4	0.85	2.84	
GBA2	Deaths	Rates	%	Population
Total	290	26.54	100.00	1092668
Violence	119	10.89	41.03	
Cardiovascular diseases	52	4.76	17.93	
Respiratory diseases	43	3.94	14.83	
Others	38	3.48	13.10	
Infectious diseases	13	1.19	4.48	
Congenital anomalies	13	1.19	4.48	
Tumours	12	1.10	4.14	
CAPITAL FEDERAL	Deaths	Rates	%	Population
Total	111	28.94	1000.00	383550
Cardiovascular diseases	42	10.95	37.84	
Others	25	6.52	22.52	
Violence	16	4.17	14.41	
Respiratory diseases	15	3.91	13.51	
Infectious diseases	9	2.35	8.11	
Tumours	3	0.78	2.70	
Congenital anomalies	1	0.26	0.90	

SOURCE: Own analysis on the basis of data supplied by the Ministry of Health and Social Action.

19. Ministry of Health and Social Action (1994).

ated age groups: the one which corresponds to the school period (five to 12 years) and the one that is the beginning of adolescence (13 and 14 years). However, it was not possible to discern patterns of mortality for these two groups since processing of this kind would have exceeded the capacity of the present study. However, it is possible to determine some of the most striking characteristics of each of these groups through the analysis carried out for 1989 by the National Health Statistics Directorate.⁽¹⁹⁾ In this study, the data have been processed at the level of the three regions (Capital Federal, GBA1 and GBA2) so data disaggregated at district level are not provided. The most striking conclusions from this study are:

- There are no differences between the specific mortality of school-children (five-12 years) and of adolescents (13 and 14 years) in Capital Federal (32 per 100,000 in both cases). However, both in GBA1 and in GBA2, mortality in adolescents is higher than in school children (25 and 37 per 100,000 in GBA1 and 26 and 49 per 100,000 for GBA2, respectively).
- Violent deaths are more common among adolescents than among school-children.

- Among violent deaths, deaths from accidents predominate in all three regions and among these those caused by motor vehicles predominate.

g. Population Aged between 15 and 49 Years

The mortality rate for the population aged between 15 and 49 years in the Metropolitan Area of Buenos Aires was 17.6 per 10,000 for 1991. The rate does not differ greatly between the three regions, with Capital Federal, GBA1 and GBA2 having rates of 17.6, 17.9 and 17.4 per 10,000 respectively.

Differences between maximum and minimum rates are greatest in GBA1. Avellaneda, with 29.3 per 10,000, has a rate almost 100 per cent higher than that for Vicente López and Lanús, the districts with the lowest mortality rate.

In GBA2, the gap between the highest and lowest rates is not as marked, that for San Fernando being almost 65 per cent greater than that for Berazategui, the district in GBA2 with the lowest mortality for this age group. The remaining districts fluctuate around the average for the region.

Mortality by cause⁽²⁰⁾ (see Table 8) shows that “cardiovascular diseases” are the first cause of death in all three regions. “Violence” is the second cause in GBA1 and GBA2 followed by “tumours” and those classified as “others”. In Capital Federal, on the other hand, the second cause of death is tumours whilst violence comes third. What is striking is that the rate for respiratory diseases is double that for GBA1 and GBA2.

This age group can also be divided into two sub-groups with different characteristics. On the one hand, there is the 15 to 19 year age group which makes up the adolescent population and, on the other hand, the 20 to 49 year age group which makes up the already adult population. As the processed data do not make it possible to analyze mortality with respect to these two groups, the main conclusions with reference to them will be taken from the study carried out by the National Health Statistics Directorate⁽²¹⁾ for the three regions of the Metropolitan Area in 1989.

Population Aged between 13 and 19 Years:

- Specific mortality for this age group was highest in GBA2 (7.1 per ten thousand) followed by GBA1 and finally Capital Federal with 5.6 and 4.3 per 10,000, respectively.
- Violence was the first cause of death, the proportion being highest in GBA2 (58.6 per cent of all deaths). In GBA1 and Capital Federal, the figures are 57.1 and 49.6 per cent, respectively.
- Within violence, accidents predominate (63.1, 55.1, and 59.6 per cent for Capital Federal, GBA1 and GBA2, respectively). In GBA1 and GBA2 homicides occupy second place (35.9 and 35.4 per cent against 6.2 per cent in Capital Federal). The high proportion of suicides in Capital Federal compared to GBA1 and GBA2 is striking (30.7, 9 and 5.1 per cent of total deaths by violence).

20. Some of the differences between the total rates for each region are due to the fact that cases for which the cause of death was a missing value were not considered for the analysis.

21. Ministry of Health and Social Action (1994).

Table 8: Mortality by Causes for the Population Aged Between 15 and 49 Years in 1991

GBA1	Deaths	Rate	%	Population
Total	2393	17.74	100.00	1349288
Violence	777	5.76	32.47	
Respiratory diseases	550	4.08	22.98	
Cardiovascular diseases	535	3.97	22.36	
Others	372	2.76	15.55	
Infectious diseases	87	0.64	3.64	
Congenital anomalies	64	0.47	2.67	
Tumours	8	0.06	0.33	
GBA2	Deaths	Rates	%	Population
Total	4396	17.20	100.00	2555150
Violence	1362	5.33	30.98	
Cardiovascular diseases	1210	4.74	27.53	
Respiratory diseases	818	3.20	18.61	
Others	669	2.62	15.22	
Infectious diseases	174	0.68	3.96	
Congenital anomalies	148	0.58	3.37	
Tumours	15	0.06	0.34	
CAPITAL FEDERAL	Deaths	Rates	%	Population
Total	2499	17.61	100.00	1418701
Cardiovascular diseases	714	5.03	28.57	
Others	572	4.03	22.89	
Violence	494	3.48	19.77	
Respiratory diseases	475	3.35	19.01	
Infectious diseases	172	1.21	6.88	
Tumours	62	0.44	2.48	
Congenital anomalies	10	0.07	0.40	

SOURCE: Own analysis on the basis of data supplied by the Ministry of Health and Social Action.

Population Aged between 20 and 49 Years:

- Specific mortality was higher in GBA2 than in Capital Federal and GBA1 (18.4, 1.8 and 2.2 per 10,000, respectively).
- Mortality among males was higher (almost double) than in females in all three regions.
- Cardiovascular diseases predominated as first cause of death (approximately 38 per cent of deaths for the three regions). In Capital Federal tumours came second whilst in GBA1 and GBA2 this place was occupied by violence with 25.6 and 28.6 per cent of the total of corresponding deaths.
- In relation to maternal mortality rates, the figures reached are low in relation to the rate for the whole country (5.2 per 10,000 live births) with 3.3, 2.3, and 3.9 per 10,000 live births in Capital Federal, GBA1 and GBA2, respectively. According to this study, these rates would indicate substantial under-recording. The lower rates for GBA1 than for Capital Federal are due certainly to the fact that they are recorded in the place where death occurred and not in the place of habitual residence.

22. Ministerio de Salud y Acción Social (1993), *Estadísticas vitales: información básica 1991* (Life and death statistics: basic information for 1991), Buenos Aires.

23. Some of the differences between the total rates for each region are due to the fact that cases for which the cause of death was a missing value were not considered for the analysis.

24. See reference 22.

25. Some of the differences between the total rates for each region are due to the fact that cases for which the cause of death was a missing value were not considered for the analysis.

h. Population Aged between 50 and 64 Years

The Metropolitan Area has a mortality rate for this age group of 11 per 1,000, a figure similar to that observed in the province of Buenos Aires for the same year (11.3 per 1,000).⁽²²⁾ Capital Federal, GBA1 and GBA2 do not show any differences with regard to this average with rates of 11.0, 11.0 and 11.1 per 1,000, respectively.

The districts which make up GBA1 do not reveal great differences from the average for the region with the exception of Avellaneda where the rate is nearly 50 per cent higher than the average.

In GBA2, San Fernando, with a rate of 14.3 per 1,000, and Merlo, with 12.2 per 1,000, are the districts which present higher mortality for this age group. The others fluctuate around the average.

Mortality by cause⁽²³⁾ shows that cardiovascular diseases, tumours, those classified as "others" occupy first, second and third places as causes of death in all three regions. Respiratory and infectious diseases are not preponderant in any of the three regions. The rate for violence in GBA2 is double that for Capital Federal and GBA1.

i. Population aged 65 Years and Over

The mortality rate in the Metropolitan Area for the population aged 65 years and over was 54.8 per 1,000 in 1991, a level very similar to that of the province of Buenos Aires for the same period (53.4 per 1,000).⁽²⁴⁾ Both Capital Federal, and GBA1 and GBA2 have similar rates although the rate for GBA2 is slightly lower.

Within GBA1, Avellaneda stands out with a rate of 81.8 per 1,000, nearly 100 per cent more than that for Tres de Febrero with a rate of 43.01 per 1,000. The remaining districts fluctuate within a range of 48 to 60 per 1,000.

In GBA2, San Fernando has the highest mortality rate with 65.4 per 1,000, followed by Lomas de Zamora (58.7 per 1,000) and Merlo (57.8 per 1,000). Quilmes and La Matanza have the lowest figures (47.2 and 48.6 per 1,000) and the other districts fluctuate with rates around the average.

Again, cardiovascular diseases are the first cause of death in this population, followed by tumours, those diseases classified as "others" and "respiratory diseases"⁽²⁵⁾

IV. CONCLUSIONS

THE DATA PRESENTED here show how, as the data are disaggregated to lower geographical levels, the different situations in relation to living conditions and health which the people in different city areas face become apparent. They reveal a heterogeneity which is concealed when only indicators for cities or metropolitan regions are considered. In this way, geographical inequality is useful as a tool to identify inequalities which exist between different social groups.

From this perspective, the study shows how, for the different age groups considered, the distribution of mortality reveals great differences between the three regions within the Metropolitan Area and among the districts in each region. Moreover, infant mortality - the best indicator for detecting situations of social vulnerability - appears to be clearly related to the distribution of the indicators for unsatisfied basic needs and access to education, housing and sanitation.

The analysis of causes of death shows different situations in each district according to the age group considered. It is obvious that the distribution of causes of death tends to be similar when one analyzes the older age groups; it is infant mortality which most clearly marks the relation between socio-economic levels and levels of access to services and conditions of health. This is due to a large extent to the fact that the classification used to categorize the adult age groups corresponds to the group of causes fixed in the International Classification of Diseases (ICE), 9th Revision, and this appears to be somewhat inadequate for the detection of the health problems facing these groups. Problems such as drug addiction, alcoholism, depression, anxiety, stress, family violence, AIDS, problems related to environmental pollution, etc. are very difficult to detect using the classification methodology proposed in the ICE.

In this sense the whole picture of the health status of the population is influenced not only by the actual health-disease experience of individuals but also by the analytical and conceptual framework that is used to apprehend and understand reality. Thus, the final "diagnosis" of how people live and die will be the result of a combination of different factors.

- The design of national health information systems: the variables included the methodology for the collection of the population statistics and the classification systems used to analyze the resulting information.
- The reliability of the information collected: the levels of under-recording, the quality of information gathering, the level of training of those entrusted with recording the data at primary level (e.g., doctors in the case of death certificates).
- How different factors related to living conditions of the population interact and impact the health situation of the different social groups which will be reflected in the data, depending on the ability of the systems to detect these processes.
- Access to the health services and the quality of care which

these provide, which determines that certain situations of social and environmental vulnerability affecting specific populations can be overcome and attenuated by accessible and efficient services.

Future studies on inequality in health should be supplemented by more detailed studies for the aspects mentioned so that the diagnosis can address the problems of both poor living conditions and inadequate access to health services, and the design and quality of the information systems used to evaluate these situations.

Finally, what has been said above brings out the real problem facing both research workers and policy makers: the methodological difficulties inherent in health data. This situation, widely recognized, produces the paradox of a kind of information deficiency in contexts where a large amount of data is produced. On the one hand, those who are working in research make clear the limitations of the existing data for the production of academically valid information for comparison between different populations which will make it possible to show the complex picture of health in the population. On the other hand, those who are working in local environments, taking decisions on the distribution of resources, the implementation of policies of prevention, the management of critical situations, etc. come up against the fact that existing data are not valid at low levels of disaggregation and are out of date. Both groups, in turn, are facing the common problem that conventional health information systems are highly inefficient in identifying the new health problems which urban societies are facing.

From what has been said above, in the study of inequality in health it is essential that progress be made in the development of health information systems starting from a fundamental debate on the interrelation between social and epidemiological data and which makes it possible to incorporate the complex problems facing people who live in today's cities.