Developing primary health care in the National Health System in the city of Diadema

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In June 2009, this was the fifth meeting of the Governing Board of the Municipal Secretary of Health (Secretaria Municipal de Saúde, or SMS) of the city of Diadema, and a Municipal Health Plan had not yet been prepared for the new administration that would take office next year. The department was always busy with its day-to-day routine, which had routinely postponed the discussions on the path to be taken by the new administrators. Dr. Aparecida L. Pimenta, a public health physician with a doctorate in public health and the current head of the Department of Health, was concerned with the budget of her department, given the need for implementing certain changes. However, she had no idea of how to obtain new funding to use for her new initiatives. “The quality indicators of the National Health System [Sistema Único de Saúde, or SUS] for the municipality are stagnating,

1 Case study developed by Professor Carlos Alberto Suslik and Flavius Augusto Olivetti Albieri. This case study is solely for the purpose of classroom discussion and does not propose to render an opinion on managerial effectiveness or ineffectiveness or to serve as a primary source of data.

2 Governing Board: group of people (in this case, department heads and other administrators) that meet on a regular basis to discuss problems, identify solutions and decide on the path the organization should take. However, this decision-making body does not absolve the figure of the general director of the organization (in this case, the Municipal Secretary of Health) of responsibility for the decisions taken by the organization.

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with some even deteriorating. We must do something to ensure that we can offer better health services to our constituents.”

In 2008, the Municipal Government of Diadema had allocated 31.05% of its budget to healthcare, but the city’s investment over the last four years had averaged 29.63% of its budget, even though Constitutional Amendment 29 recommended only 15%.

“Could this be a good time to reevaluate the health management model implemented in the city and to invest in preparing the teams to offer comprehensive care by further integrating services and areas and implementing a comprehensive care model,” she thought. “Or should we complement the healthcare network with more refurbishments, more equipment, more general and specialist physicians, given the expectations many users have of the capacity of health services being expanded. She was aware that her department had been used by previous mayoral administrations as an important example in their reelection campaigns, so she had to avoid frustrating the expectations of the city's population. “What should I do before such high expectations?” With this, she asked her assistant to turn on the media projector and began presenting the data to the Governing Board.

National Health System: Brazil’s healthcare model

Brazil’s National Health System is one of the largest public healthcare systems in the world. Its services range from simple outpatient services to organ transplants and it guarantees universal access and complete care at no charge for all Brazilians. Based on an expanded concept of healthcare, the National Health System was created in 1988 by Brazil’s federal constitution to provide services to more than 180 million Brazilians.

Prior to the creation of the National Health System, which turned 20 years old in 2008, healthcare was not considered a social right. The healthcare model adopted up until then divided Brazilians into three categories: those who could pay for private healthcare; those who were entitled to public healthcare because they were insured under the social security system (i.e., formally contracted workers); and those who had no rights whatsoever. Therefore, the National Health System was created to offer services on an equitable basis and to care for and promote the health of the entire population. The system represented a unique social project that was brought about through actions to promote, prevent and care for the health of all Brazilians. The Letter of Healthcare Users Rights outlines the six basic principles of citizenship that assure Brazilians the right to use the health care system, whether public or private. These are: (1) all citizens have the right to ordered and organized access to the health systems; (2) all citizens have the right to adequate and effective treatment

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3 Comprehensive care is understood as the coordinated and continuous set of preventative and curative actions and services, both individual and collective, required for each case and at all levels of complexity of the system (Federal Law 8.080 of September 19, 1990).

of their problems; (3) all citizens have the right to humane and hospitable service that is free from any discrimination; (4) all citizens have the right to services that respect their individuality, their values and their rights; (5) all citizens also are responsible for ensuring that their treatment progresses adequately; (6) all citizens are entitled to a firm commitment by health managers to uphold the previous principles.

**Governing institutions of the National Health System**

By establishing that healthcare is the responsibility of the state, Brazil’s constitution refers to the government, which encompasses the federal government, the states, the federal district and the municipalities. This means that managing the National Health System is the responsibility of the federal government (through the Ministry of Health); of the states and the Federal District of Brasilia (through the various state departments of health); and of the municipalities (through the various municipal departments of health).

Therefore, National Health System administrators are the representatives of each branch of government designated to perform health services and initiatives: at the national level, the minister of health; at the state level, the state secretary of health; and at the municipal level, the municipal secretary of health. In general, National Health System administrators are responsible for formulating the policies and planning, for financing activities, for coordinating, regulating, controlling and evaluating the systems/networks and the public and private health care providers and for providing health services directly to the populations.

**Primary health care in the National Health System**

Primary health care (PHC) is characterized by a set of health actions at the individual and collective level that include health promotion and protection, prevention of disease and disorders, diagnoses, treatment and rehabilitation and maintenance. It is developed through democratic and participatory administrative and public health practices offered through teams and directed to populations in well-delineated regions, through which responsibility is undertaken for public health based on the particular dynamics of the region where these populations live. PHC should resolve the most common and important health problems in the region and be users’ preferred point of contact with the health systems. It considers people in terms of their singularity, complexity, wholeness and socio-cultural context and seeks to promote health, prevent and treat disease and reduce damages or suffering that threaten the possibility of living a healthy life. The main strategy for organizing primary care in accordance with the precepts of the National Health System is Family Health (FH).
Family health: a PHC strategy in the National Health System

The main challenge of Family Health, which is the strategy prioritized by the Ministry of Health for organizing PHC, is to reorient health practices and actions comprehensively and continuously and to bring them closer to families in order to improve the quality of life of Brazilians. It incorporates and reaffirms the basic principles of the National Health System, which are universal access, decentralization, comprehensive care and community participation, by registering users and forging relationships with them.

Services are provided by the Family Health teams of professionals (physicians, nurses, nursing assistants, community health workers, dentists and dental assistants) at the health units or at people’s homes. This team and the population receiving services create a relationship of shared responsibility, which makes it easier to identify, care for and monitor the health problems suffered by individuals or families in the communities.

Family Health activities are conducted by installing multi-professional teams at basic health units (BHUs). These teams are responsible for accompanying a certain number of families living in a delineated geographical area. The teams develop actions to promote health, prevent, recover and rehabilitate the most common diseases and disorders and maintain the health of the community. The Family Health strategy is a dynamic program of the National Health System, given its evolution and organization in Brazil. The speed with which the Family Health program has expanded (Exhibit 1) demonstrates the level of adherence of state and municipal administrators to its principles. Launched in 1994, the Family Health program has registered strong growth in recent years. In 2007, it covered 56.8% of Brazil’s population, which corresponds to around 107.0 million people. This year, the Ministry of Health will invest R$4.064 billion in the Family Health program, but the full implementation of this strategy will most likely be sustained only by a process that allows for truly substituting the traditional primary health network at the municipal level and by the program’s ability to generate improvement in health and quality of life indicators in the populations being served (Exhibit 2).

The strategy has sparked an important movement to reorganize the care model of the National Health System, with more rationalized use of other health care levels, and has generated positive results in the health indicators of populations served by the Family Health teams.

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5 National Primary Policy, Ministerial Order 648/GM issued on March 28, 2006, which establishes the guidelines and rules governing the organization of Primary Care for the Family Health Program (PSF) and the Community Health Workers Programs (PACS).

6 Federal Constitution of 1998 – Title VIII – Social Order; Chapter II – Section II, Health – Articles 196; 197; 198 (sole paragraph – Amendment 29); 200.
The “Evaluation of the impact of the Family Health Program on infant mortality in Brazil, 1990-2002”, a study conducted by the Ministry of Health in partnership with the University of São Paulo (USP) and the University of New York, demonstrated that for each 10% increase in the population covered by the Family Health strategy, the infant mortality rate fell by 4.5%.

Health teams under the Family Health strategy

In the Family Health program, teamwork is a key element of the permanent pursuit of communication and exchange of experiences and knowledge between the team members and also between the team and the popular knowledge of the community health workers. The teams are composed of at minimum one family physician, one nurse, one nursing assistance and six community health workers. Expanded versions of the team also have one dentist, a dental assistant and a dental hygiene technician. Each team is responsible for accompanying around 3,000 to 4,500 people, or around 1,000 families living in a specific area, who in turn become co-responsible for their health care.

The World Health Report 2008 of the World Health Organization (WHO) recommends the adoption of PHC in all countries and highlights Brazil as an example of this initiative. The WHO singled out measures such as the Family Health strategy as a model to be followed, given the good results obtained in improving Brazil’s public health system. The document recommends that countries adopt universal health care and adds: “Brazil, which began to adopt a universal coverage system in 1988, already offers access to 70% of its population. [...] Health systems can be redirected to better serve the needs of people through points established in the community.” The document cites the success of Brazil’s Family Health Program, which was adopted in 1994 as one of the programs proposed by the federal government to municipalities for their implementation of PHC. The editor-in-chief responsible for the report, Win Van Lerberghe, stated that the program is “one of the most impressive examples of the impacts from adopting primary care and how this care must be implemented in order to generate improvements in health quality and produce results. [...] The Brazilian strategy shows what path the system should take.”

The city of Diadema

Diadema is part of the São Paulo Metropolitan Area, more specifically the region known as the Greater ABC. The city was emancipated in 1959. For a long time, it was considered a commuter town and its population growth followed the classic model of peripheral expansion: inexpensive land with no infrastructure in irregular lots that serve to house people who work in the high concentration of manufacturers that set up factories in the

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southern region of the São Paulo Metropolitan Area and in Greater ABC. The city registered its strongest population growth during the 1970s and 1980s, with the city’s population growing at a staggering rate (from 78,917 in 1970 to 228,660 in 1980). Today, its residents number 397,734 (Exhibit 3), with a proportion of 93.1 men to 100 women and a demographic density of 12,687 people per square kilometer, which is one of the highest in the country (Greater ABC: 3,078 people/km²; SP Metro Area: 2,410 people/km²). The city’s urbanization rate is 100% while its literacy rate is 80.9%. In terms of basic sanitation, 99.1% of residents receive public water service, 92.0% are connected to the sewer and rainwater system and 99.6% have public trash collection.

The municipality has been accompanying the demographic transition that has been occurring in Brazil, with rapid changes in the composition of age groups that reveal the accelerated aging of the population. Data from the national census taken from 1980 to 2000 shows that the proportion of the under 15 population decreased from 38.2% to 29.6%. In Diadema, this trend was also observed, with a decrease from 37.8% in 1980 to 28.45% in 2000. The city’s human development index (HDI) was 0.79 in 2000, which is considered average (from 0.500 to 0.799) or borderline for the high category (from 0.800 to 0.899), while Brazil registered an HDI in 2007 of 0.813 (Source: UNDP, 2000 and 2007).

The city’s current mayoral administration was elected for the 2009-12 term from the Workers’ Party (PT), which has a rich history of governing the city. Diadema was the first city in the country to give the PT party an opportunity to govern. For a total of 21 years and for 10 straight years, the party has led the city with creativity and bold actions that have enjoyed broad acceptance by the local population. The current mayor served as secretary of works and planning under previous administrations.

**Diadema’s current health system**

Diadema was a pioneer in implementing the National Health System, being the first city to qualify for semi-complete management in 1994 and for complete management in 1998. The city government developed an important partnership with Brazil’s Ministry of Health in, for example, primary care. The Diadema health network is currently composed as follows (Exhibit 4):

Primary Health Care: Diadema has 19 Basic Health Units (BHU) distributed in 11 neighborhoods. The BHUs are considered the points of entry to the National Health System, since they serve as the population’s first reference when seeking care for their health problems and needs. Each BHU is responsible for a particular geographic area and population; its mission is to become familiar with the region, coordinate and participate in intersectoral initiatives developed in these areas and promote public health actions to prevent, protect and treat disease and the health problems of residents. The BHU is also

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responsible for referring users to exams and specialized or hospital care when required by the care. The BHU may have family/general physicians (physicians specializing in comprehensive care, taking into account context of the patient's family and community), pediatricians, gynecologists-obstetricians and general practitioners, as well as nurses, dentists, nursing technicians and assistants and dental assistants, psychologists, speech therapists, social workers, community health workers, an administrative team, security guards and cleaning staff. The services offered by the BHU include meeting users' health needs, medical services and procedures, nursing services and procedures, group health education activities, oral health care, mental health care, social services, distribution of medicine, collection of material for laboratory and cytological tests, pregnancy tests, prenatal and postnatal care, pediatrics, vaccinations, wound dressings, inhalation treatments, removal of surgical stitches, blood pressure measurements, blood glycine tests and epidemiologic surveillance.

Medium-complexity healthcare: the Health Block located in the center of the city is an ambulatory complex with 20,000 square meters of area that offers medium- and high-complexity services that incorporate high levels of technology. It offers 26 medical specialties, rehabilitation services (such as orthopedic, neurological and pulmonary physiotherapy), auxiliary diagnostic services and complementary therapies, such as computerized tomography, bone densitometry, mammography, ultrasound, electroe neuromyography, electroencephalography, holter, mapping, ergometric tests and endoscopy, as well as a dental specialities center (endodontics, stomatology and oral surgery). There is also an ambulatory surgery center (three rooms) for elective procedures of low and medium complexity that use conventional and videosurgery techniques and have short stays (day hospital). There is also a clinical analysis laboratory center that serves the entire complex and the entire municipal health network, as well as the Occupational Health Reference Center (Cerest), which is responsible for assistance, education and surveillance activities focused on worker health, such as quality of life groups for persons with repetitive strain injury and work-related musculoskeletal disorders. Another medium-complexity service is the Sexually Transmitted Diseases/AIDS and Hepatitis Reference Center, which offers specialized medical consultations and other types of services, including dental, psychological, social services and physiotherapy.

The Urgent and Emergency Care Network is composed of the Diadema Emergency Center (Pronto-Socorro Central, or PSC), which is housed in the Health Block. It offers clinical medicine, clinical surgery, pediatric and psychiatry services on an emergency basis, with doors open every day, receiving patients referred by the BHU or the Emergency Care Units (Pronto Atendimentos, or PAs), who are brought by the Mobile Emergency Care Service (Serviço de Atendimento Móvel de Urgência, or SAMU), by the military police or by the fire department, with demand arising spontaneously. The municipality also has Emergency Care Units (Pronto Atendimentos, or PAs). The SAMU mobile emergency care service is part of the network that provides pre-hospital urgent and emergency care in the areas of clinical medicine, surgery, traumatology, orthopedics, pediatrics, gynecology-obstetrics and
psychiatry, as well as inter-hospital ICU transport. It also comes into action during disasters, catastrophes and multiple-victim accidents.

The Diadema Municipal Hospital is a general hospital that provides urgent and emergency care and admits patients into the clinical medicine, surgical, gynecological-obstetric and orthopedic units, while also offering serving as a backup for pediatric admissions. Today it has 206 hospital beds: 170 for admissions and 36 for observation.

The mental health network has an ambulatory unit located in the Health Block that handles moderate to serious cases, as well as five Psychosocial Support Centers (CAPS), of which one specializes in services to alcohol and other drug users and one is exclusively for children. There are specialists in psychiatry on call at the Diadema Emergency Center to provide urgent and emergency services.

In addition to the service areas, other areas complement the actions of the system. The Health Surveillance department has three main units: Public Health Surveillance (VISA), Epidemiology and Disease Control (ECD) and the Zoonosis Control Center (CCZ). The Regulation, Evaluation, Control and Audit Division conducts direct macro-actions, such as regulating access to health services, contracting support services, evaluating health care and the control of services, as well as supporting the planning of the Municipal Secretary of Health (SMS) through regular reports with production data and evaluations of the services. The other departments are pharmaceutical support, waste transportation, information technology, social control and customer service (SAU).

The history of primary health care in Diadema

Until the mid-1980s, the supply of primary health care services was limited to the seven “health units”. Located in rented houses, they were staffed by a pediatrician, a nurse and a nursing assistant, and their activities were limited to pediatric medicine and vaccinations. There was only one larger-sized unit, which was operated by the State Department of Health: the Health Center located in the city’s center.

With the surge in the local population in the 1970s and 1980s, the capacity of this network became insufficient to meet the needs of the public, who were forced to resort to emergency units or hospitals in the region for even routine care. As of 1987, a cycle began to install large Basic Units staffed with other professionals, which included gynecologists and general practitioners and later oral health professionals, psychologists, social workers, speech therapists and administrative staff.

This cycle of improvement in the primary health care network of Diadema was ended in 1996, with a set of 15 midsized and large Basic Health Units (BHU). In the same year, the first
process was launched to segment health services into regions,\textsuperscript{10} when the coverage areas of the BHUs were defined. Workshops held in all of the BHUs also identified, at the time, problems related to the organization of work processes and services, such as difficulties in accessing services, the fragile relationship between professionals and the communities, the low rate with which problems were solved and the excessive emphasis on individual care focused on users’ most immediate complaints. Over the next 10 years, the network incorporated four new small units, bringing, in 2005, the total to 19 BHUs and around 1,100 professionals.

Despite this scale, the network suffered a significant loss in its capacity to provide services. There were clearly structural problems due to the "ageing" BHU infrastructure, with some units in intensive use for more than 15 without proper maintenance and the equipment in precarious conditions and in some cases obsolete. In previous years, approximately 300 professionals had been lost due to the shortening of shifts, especially physicians and dentists. In the same period, the population grew and demand increased for health services by adults, the elderly and persons with chronic diseases. The result of this complex web of problems led to a significant reduction in service capacity at BHUs in Diadema, which once again had become insufficient to meet the health needs.

In 2005, a reorganization of PHC in the municipality was proposed, which was based on expansion of the Family Health strategy (Exhibit 5). For this, they drew on a study of the demographic areas and an evaluation of the geographic barriers presented by the areas and the number of families prescribed by the Ministry of Health for implementing the Family Health model. The conventional PHC model, which served only users who actively sought services, was found to prevail in most of the city. The inequality between the BHUs also created hurdles for consolidating Family Health in Diadema, since each offered different services and different degrees of problem resolution. Therefore, users had to go to one unit to get a vaccine or receive medications and to another to receive a consultation or participate in a group activity. This created a sense of dissatisfaction among users and made it more difficult to understand which service to seek out in each situation, which compromised the relationship of the BHU with the population in its coverage area.

After the study, the process to implement Family Health was launched with management workshops in which the areas under the responsibility of each BHU and its problems were redefined and studied; the PHC information systems were prioritized and reorganized; a diagnosis was made of the structural situation of the equipment and human resources and the demands and service capacity of each BHU were studied, as well as other essential aspects for planning the services. A total of 287 new professionals were hired, who included

\textsuperscript{10} Political and operational area of the health system in which the population and services interact at the local level and which is characterized by a specific population that lives in a specific time and space and with defined health problems and which interacts with the administrators of different units providing health services. In addition to being a geometric space, it has a demographic, epidemiological, administrative, technological, political, social and cultural profile. Mendes E. V. Distritos sanitários: processo social de mudanças nas práticas sanitárias para Sistema Único de Saúde. São Paulo: Hucitec/Rio de Janeiro: Abrasco, 1993.
community health workers, physicians, nurses and dentists, through an agreement between the municipal government of Diadema and the São Paulo State Association for the Development of Medicine (SPDM), which is connected to the Federal University of São Paulo (UNIFESP). This restructuring led to significant growth in the number of Family Health teams, which increased from 34 in 2006 to 59 by December 2007. Given that each team represented the coverage of approximately 1% of the population, around 66% of the population of Diadema was covered by the strategy (Exhibits 6 and 7). Some of the BHUs were refurbished and expanded to adapt to the new work processes and the equipment and furnishings were renewed. Various actions were also implemented to reorganize the work processes and improve the quality of PHC services, which included developing protocols, training programs, implementing quality improvement assessments\(^{11}\) (AMQ) and offering graduate programs to BHU administrators.

**Financing health care in Diadema**

In order to support her new decisions, Dr. Aparecida had to detail the budget of her department. Knowing that the municipality’s health care financing is shared between the three branches of government (municipal, state and federal) and that Constitutional Amendment 29/2000 (which set the minimum percentages of investment in public health services and actions) establishes that municipalities must invest at minimum 15% of their own resources, the budget of the Municipal Secretary of Health in 2008 was R$207,315,692.54. Of this amount, R$140,940,190.00 were Municipal Treasury funds, R$65,602,259.08 was transfers from the Ministry of Health (federal) and R$773,243.25 was from the State Department of Health, which represented an increase of 76.82% from 2005.

<table>
<thead>
<tr>
<th>Year</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>R$</td>
<td>117,244,691.60</td>
<td>141,608,803.61</td>
<td>160,255,761.43</td>
<td>207,315,692.54</td>
</tr>
</tbody>
</table>

Source: Expense Detailing Table (QDD), Diadema Safira System.

According to the Public Health Budget Information System (SIOPS), in 2008, the Municipal Government of Diadema allocated 31.05% of its own budget to health, which is more than double the amount determined by Constitutional Amendment 29, and the city government’s health-related investments have averaged 29.63% over the last four years.

<table>
<thead>
<tr>
<th>Year</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>30.93</td>
<td>28.20</td>
<td>28.87</td>
<td>31.05</td>
<td>29.63</td>
</tr>
</tbody>
</table>

Source: SIOPS/Ministry of Health.

\(^{11}\) This is an autosuggestion methodology for the continuous improvement processes in the quality developed by the Ministry of Health specifically for its Family Health strategy. The central concept of the proposal is to establish quality parameters for the strategy, to use evaluations as a management and decision-making instrument and a commitment to the quality of the primary care. There are five self-evaluation instruments based on quality standards and focused on specific actors (municipal health administrator, Family Health coordinators, Family Health unit, Family Health team, and college-educated Family Health professionals). http://dtr2002.saude.gov.br/proest/autoavaliacaoesf/index.htm
Analysis of the data shows strong growth in health spending in the last administration, driven in particular by higher personnel expenses (excluding outsourcing), which grew by 82% between 2005 and 2008. In 2008, personnel expenses cost the public coffers R$114,326,327.05, which represented 54.56% of total health expenses. The HR costs of outsourcing and institutions accredited by the Municipal Secretary of Health of Diadema that were not included in the calculation, but which are considerable, increased to 75% the percentage of spending allocated to personnel.

The municipality paid for around 70% of its health expenses, with the Ministry of Health paying 30% and the state contributing with less than 1%.

### Cost of PHC in Diadema

Since the start of its project to reorganize PHC and the resulting increase in its health spending, the need became clear to increase investments in the area. New funds were required to hire professionals, expand the BHUs and renew equipment and furnishings. The sustainability of the project meant that spending had to be optimized and new funds had to be raised. Data on the payroll, materials, contracts and services, medicines, laboratory and maintenance attest to the city’s growing investments in PHC and to the higher share of the contribution from the Ministry of Health to its financing (Exhibit 8).
The Family Health strategy and the health of the people of Diadema

Certain quality parameters and health indicators were on the agenda of the meetings headed by Dr. Aparecida Pimenta on the Governing Board. All the directors and coordinators of strategic areas at the Department of Health were facing a serious problem. Despite the changes in the model and the expansion in the Family Health strategy in the city, the indicators signaled the need to rethink what to do and how to do it.

The indicator Hospitalization for Primary Care-Sensitive Conditions is based on conditions for which hospital admission could be prevented if primary care services were effective and accessible. (The concept was developed by John Billings in 1990 as a corollary of the avoidable mortality concept.) A study entitled PCSA Brazil Project - Primary Care Sensitive Admissions (Projeto Isab Brasil – Internações Sensíveis à Atenção Básica) coordinated by James Macinko of New York University, in partnership with the Federal University of Minas Gerais (UFMG), the Federal University of Bahia (UFBA) and the Primary Care Department of the Ministry of Health, conducted between 2007 and 2008, reported that the main causes of hospital admissions include conditions related to the lack of preventive services (routine in PHC), severe traumas, other urgent needs, surgery needs, complex diagnostic tests (other services that require hospitalization) and uncontrolled complications related to chronic diseases.

In the municipal hospital services of Diadema, the percentage of hospital admissions due to primary care sensitive causes was approximately 32% in 2008 and 37% in the first-half of 2009, registering an increase of 15.6%. In the state of São Paulo, in 2008, Primary Care Sensitive Admissions (PCSA) represented 19.5% of total admissions; in the São Paulo Metropolitan Area (with 39 municipalities and a population of 19,949,258) 18.2%; and in the Greater ABC area (with seven municipalities and a population of 2,615,092) 21.1%. In studies conducted in New Zealand (CRAMPTON, 2004), of all the admissions in the country, 70% were considered unavoidable, 20% sensitive to PHC and 10% avoidable by group health.

Meanwhile, the infant mortality rate in Diadema declined between 2001 and 2007, but in recent years has fluctuated, indicating deterioration in the city’s epidemiological scenario.

<table>
<thead>
<tr>
<th>Year</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
</table>

Source: SEADE (2001 to 2007).

As for maternal mortality,\(^{12}\) between 2000 and 2004 in Brazil, mortality associated with the pregnancy puerperium cycle and abortion was the ninth highest cause of mortality in women of fertile age. However, the gravity of the problem becomes clear when you associate

\(^{12}\) The death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.
pregnancy and sexual experiences: in most cases, maternal death is avoidable, since it is directly related to good pre-natal, delivery and post-natal care. Between 2004 and 2007, the municipality of Diadema registered a maternal mortality that was not only growing but also the highest in the state of São Paulo.

<table>
<thead>
<tr>
<th>Year</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diadema</td>
<td>27.8</td>
<td>43.6</td>
<td>-</td>
<td>44.8</td>
</tr>
<tr>
<td>State of São Paulo</td>
<td>31.4</td>
<td>32.3</td>
<td>38.6</td>
<td>32.2</td>
</tr>
</tbody>
</table>


Other health indicators, such as the percentage of neonates under 2,500 grams, gestation during adolescence, presence of syphilis or congenital syphilis during pregnancy and total admissions to pediatric hospitals, also stagnated or worsened in recent years (Exhibits 9 and 10).

*Production of health services*

The more than 500 physicians of the Department of Health produce a considerable volume of medical consultations and services, which exceeded 1,228,215 in 2008. Considering the population of 394,266 in 2008, the Diadema Department of Health registered capacity of 3.1 medical consultations per person in the year.

According to the parameters of Ministerial Order 1.101/02 issued by the Ministry of Health (which despite the limits due to health technologies incorporated in recent years, is still the only reference for this type of analysis), there should be two (minimum) to three (maximum) medical consultations per capita per year, and the expected breakdown should be 60% in PHC, 20% in urgent and emergency care and 20% in specialized care.

<table>
<thead>
<tr>
<th>NEED for medical consultations in Diadema, SP</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>POPULATION of Diadema, SP</td>
<td>395,331</td>
<td>401,111</td>
<td>394,266</td>
</tr>
<tr>
<td>1. Urgent/emergency medical consultations (parameter: 20%)</td>
<td>237,199</td>
<td>240,667</td>
<td>236,560</td>
</tr>
<tr>
<td>2. PHC medical consultations (parameter: 60%)</td>
<td>711,596</td>
<td>722,000</td>
<td>709,679</td>
</tr>
<tr>
<td>3. Specialized medical consultations (parameter: 20%)</td>
<td>237,199</td>
<td>240,667</td>
<td>236,560</td>
</tr>
<tr>
<td>TOTAL MEDICAL CONSULTATIONS to be realized (maximum parameter: 3 medical consultations/person/year)</td>
<td>1,185,993</td>
<td>1,203,333</td>
<td>1,182,798</td>
</tr>
</tbody>
</table>

Source: SIA/National Health System: prepared by the Regulation, Evaluation, Control and Audit Center DA SMS-Diadema.
PRODUCTION of medical consultations realized by SMS Diadema, SP

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Urgent/emergency medical consultations</td>
<td>661,852</td>
<td>666,292</td>
<td>720,962</td>
</tr>
<tr>
<td>2. PHC medical consultations</td>
<td>477,453</td>
<td>424,783</td>
<td>438,416</td>
</tr>
<tr>
<td>3. Specialized medical consultations</td>
<td>58,754</td>
<td>59,908</td>
<td>68,837</td>
</tr>
<tr>
<td><strong>TOTAL MEDICAL CONSULTATIONS realized</strong></td>
<td><strong>1,198,059</strong></td>
<td><strong>1,150,983</strong></td>
<td><strong>1,228,215</strong></td>
</tr>
</tbody>
</table>

Source: SIA/National Health System: prepared by the Regulation, Evaluation, Control and Audit Center DA SMS-Diadema.

What calls attention is the enormous number of urgent and emergency medical consultations (Diadema Emergency Center, Emergency Units of the Municipal Hospital and the Children’s Hospital, and the Emergency Care Units), which increased from 661,852 in 2006 to 720,962 in 2008. On the other hand, the number of medical consultations and services in PHC declined by 8.9%, from 477,435 in 2006 to 438,416 in 2008 (Exhibit 11).

<table>
<thead>
<tr>
<th>Percentage achievement of the medical consultation production parameters based on Ministerial Order 1.101/02</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Urgent/emergency medical consultations</td>
<td>279%</td>
<td>277%</td>
<td>305%</td>
</tr>
<tr>
<td>2. PHC medical consultations</td>
<td>67%</td>
<td>59%</td>
<td>62%</td>
</tr>
<tr>
<td>3. Specialized medical consultations</td>
<td>25%</td>
<td>25%</td>
<td>29%</td>
</tr>
<tr>
<td><strong>TOTAL % OF MEDICAL CONSULTATIONS realized</strong></td>
<td><strong>101%</strong></td>
<td><strong>96%</strong></td>
<td><strong>104%</strong></td>
</tr>
</tbody>
</table>

Source: SIA/National Health System: prepared by the Regulation, Evaluation, Control and Audit Center DA SMS-Diadema.

Bear in mind that this study does not consider the consultations made by other administrative units, such as the State Department of Health (which maintains a State Hospital in the municipality and serves the region, with priority given to the city’s residents) and the private health services that can offer medical consultations (approximately 65 health care establishments). According to the Ministerial Order, in terms of the number of medical consultations that should be offered to the city’s population, the Diadema Department of Health has already produced, independently, the recommended amount.

In order to reach the parameter targets of Ministerial Order MS 1.101/02 in terms of the number of primary care medical consultations (currently 60%), medical professionals would have to be relocated from other services in which the consultations surpassed the parameter or the shortage of weekly medical professional hours on PHC equipment would have to be complemented. In other words, to fully comply with the parameters of Ministerial Order MS 1.101 in PHC, 56 general physicians working 40 hours per week or 77 specialist physicians in basic areas working 20 hours per week would have to be added. The cost of this single action on the budget of the Department of Health would be around R$10 million in the year, and the expenses of the other members of the Family Health teams in the network would also have to be covered.
Planning time

With the light from the media projector gone, Dr. Aparecida called out for someone to turn on the lights in the meeting room. With data in hand, the Governing Board, together with the Department, had to make a decision. The mayor’s office had to approve the municipal budget for the next four years, and for this the municipal health plan had to be ready.

“Would it be possible to strengthen the existing service network in Diadema and invest in improving comprehensive care in terms of both further integrating the services and areas and making care more comprehensive, which presumably would involve the teams working on an interdisciplinary basis?”

How do you respond to this question? Everyone knew that adopting a focus on PHC in the Municipal Unified Health System would require far-reaching changes in the organization and integration of services. For PHC to serve in fact as the point of entry into the system, all of the teams had to be able to resolve around 80% of the health problems of the population in their particular area through program-based actions and provide care to meet the spontaneous demand. And this would only be possible if the teams were able to offer comprehensive care, outstripping the supply of procedures based on complaint/conduct, and preparing itself to understand and resolve health problems and meet the needs of the population. The Municipal Secretary of Health should invest to ensure that the work processes are organized to serve the user well, conduct an effective survey to understand the community’s needs and diversify the menu of services offered by the teams. The health problems that require PHC are generally not very well structured, are related to the lifestyle of the communities and do not respond favorably to the supply of “medical consultations / diagnostic tests / medicines”.

To confront and resolve these problems, the teams should work on an interdisciplinary basis, applying knowledge from the various professional specialities to create, through expanded general practice, a shared field of know-how that works to improve the morbimortality and quality of life of the population. The population must be certain that it will receive better services at the PHC through the new relationships established at the units. The bonds created in the various areas can, among other things, improve adherence to treatment and in this way prevent recurring visits to municipal emergency units, which resolve the problem, but are more onerous and do not promote long-term health impacts.

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13 Expanded general practice: seeking help in other sectors, which is known as intersectoral collaboration; a commitment to the sick person viewed on a singular basis; assuming responsibility for the users of health services; recognizing the limits of the knowledge of health professionals and of the technologies they employ and seeking further knowledge in other sectors; assuming an ethical commitment. Cartilha da PNH - Clínica Ampliada, Equipe de Referência e Projeto Terapêutico Singular.
It would also be important to form professionals in continuous education processes, in order to radically change the way they work and demonstrate to and obtain the support of users so that they understand that this change is fundamental to improving their health conditions. Another initiative would be to promote the autonomy of patients in dealing with their disease processes to overcome their dependence on medical consultations and medicines, which often are used like "crutches" to support the difficulties inherent to modern life.

These adjustments in the organization of health services presuppose profound changes in the culture of the residents of Diadema in terms of the way they understand and use these services. This includes confronting the challenge of debating and changing the way that health services are currently consumed and the need to rethink this dependence in order to develop citizens who have the independence to tackle their disease processes with greater health awareness and self-care. The responsibility for health lies with the services and the citizens and their families and this should be discussed in public and social control forums. The protagonists of these changes would be the administrators, managers, health professionals and the actual users of services. But the importance should be considered of also establishing a permanent dialogue with other actors, such as the mayor and his team, city council members and political party leaders, since transforming this change into reality requires effective government.

As a second option, would it be advisable to implement new competitive civil-service examinations to expand the team of health professionals in the PHC network of the Diadema Municipal Secretary of Health? Build new units and make more structural reforms at existing units? Expand contracts to increase the supply of diagnostic support tests? This was the healthcare model adopted for the city by its previous administrations.

A light of inspiration: Dr. Aparecida needed much more than this from the group.

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14 Continuing education consists of coordinating the learning needs with the work needs where learning and teaching is part of the daily routines of health professionals and organizations. Allows for updating the knowledge of health professionals and for reflecting on and critically analyzing work and development processes, which facilitates the identification of problems and the creation of strategies for overcoming them. National Permanent Education Policy of the Ministry of Health of Brazil.
Exhibit 1 - Evolution in the implementation of Family Health teams (% coverage) in Brazil in the reference period: 2002-2008 (www.saude.gov.br/dab)
Exhibit 1 (continued) - Evolution of the population covered by the Family Health teams - reference period: 1994-2009 (www.saude.gov.br/dab)

Source: Primary Care Information System (SIAB) and National Registration of Health Establishments System (SCNES).

Exhibit 2 - Evolution in the infant mortality rate in Brazil: 1990-2006

Source: SVS/Ministry of Health and IBGE – 2006 (preliminary data, subject to change).
Exhibit 2 (continued) - Evolution in the asthma hospitalization rate among 15 to 19 year olds in Brazil: 1998-2006

Evolution in the ratio of cervical cancer screening in females from 25 to 59 years broken down by level of Family Health coverage in Brasil: 2003-2007

Source: Fundação SEADE/SP.
Exhibit 4 – Distribution of health services in the municipality of Diadema, SP: 2008

Source: Primary Care Coordination (CAB), Diadema Department of Health (SMS). Preparation: CAB/2008.

Exhibit 5 – Expansion of Family Health coverage in Diadema: 1997-2008

Source: Primary Care Coordination (CAB), Diadema Department of Health (SMS). Preparation: CAB/2008.
Exhibit 6 – Evolution in the implementation of Family Health and oral health teams in Diadema: 1997-2008

Number of general practitioners, clinical physicians, gynecologists and pediatricians in PHC in Diadema: 2006-2008

Number of nurses in primary health care in Diadema: 2006-2008
Exhibit 7 - Total dental surgeons in primary health care in Diadema: 2006-2008

Source: Primary Care Coordination (CAB), Diadema Department of Health (SMS). Preparation: CAB/2008.

Number of psychologists, speech therapists and social workers in primary health care in Diadema: 2006-2008

Source: Primary Care Coordination (CAB), Diadema Department of Health (SMS). Preparation: CAB/2008.

Number of community health workers in primary health care in Diadema: 2006-2008

Source: Primary Care Coordination (CAB), Diadema Department of Health (SMS). Preparation: CAB/2008.
Exhibit 8 - Spending on Primary Care in Diadema, 2006-2008

Annual per-capita spending on primary care in Diadema, 2006 and 2007

Source: SIOPS/SUS. Preparation: Primary Care Coordination (CAB), Diadema Department of Health (SMS)/2008.
SPENDING ON PRIMARY CARE IN 2006 AND 2007, DIADEMA, SP

Source: SIOPS/SUS. Preparation: Primary Care Coordination (CAB), Diadema Department of Health (SMS)/2008.
Exhibit 9 – Percentage of neonates of mothers residing in Diadema weighing under 2500g, 2004-2008


Percentage of livebirths by adolescent mothers residing in Diadema, 2004-2008

**Exhibit 9 (continued)** - Cases of syphilis in pregnant women and of congenital syphilis and the rate of congenital syphilis by municipalities in the ABC region, municipalities in the city of São Paulo and in the state of São Paulo: 2007

<table>
<thead>
<tr>
<th>Municipality or region</th>
<th>Congenital syphilis</th>
<th>Syphilis in pregnant women</th>
<th>Rate of syphilis in pregnant women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diadema</td>
<td>24</td>
<td>17</td>
<td>3.6</td>
</tr>
<tr>
<td>Mauá</td>
<td>17</td>
<td>33</td>
<td>2.7</td>
</tr>
<tr>
<td>Ribeirão Pires</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Rio Grande da Serra</td>
<td>1</td>
<td>0</td>
<td>1.5</td>
</tr>
<tr>
<td>Santo André</td>
<td>13</td>
<td>21</td>
<td>1.5</td>
</tr>
<tr>
<td>São Bernardo do Campo</td>
<td>9</td>
<td>24</td>
<td>0.8</td>
</tr>
<tr>
<td>São Caetano do Sul</td>
<td>3</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>City of São Paulo</td>
<td>470</td>
<td>312</td>
<td>2.7</td>
</tr>
<tr>
<td>State of São Paulo</td>
<td>1025</td>
<td>1029</td>
<td>1.7</td>
</tr>
</tbody>
</table>

Source: SINANNEt.

**Exhibit 10** - Total pediatric hospitalizations of patients residing in Diadema in health equipment under municipal and non-municipal management, 2004-2008

Source: SIH/SUS - local base.
Exhibit 10 (continued) - Breakdown by age group of pediatric hospitalizations of patients residing in Diadema in health equipment under municipal and non-municipal management, 2004-2008

Source: Hospital Information System (SIH/SUS). Preparation: Diadema Department of Health (SMS)

Evolution in pediatric hospitalizations by age group of patients residing in Diadema in health equipment under municipal and non-municipal management, 2004-2008

Source: Hospital Information System (SIH/SUS). Preparation: Diadema Department of Health (SMS)