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Case Study



## **Primary care information system as a management tool: a case study in Santo Antonio de Jesus/BA**

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### **ABSTRACT**

The Information System of Primary Care (ISPC) is an important tool for planning activities and services offered in the unity of the family health strategy as it allows the analysis of health situation of the community attended and evaluation of work undertaken by the team. This article describes the health situation of the population enrolled in a health unit in recôncavo of Bahia. Data were collected from DATASUS (consolidated reports of health status (SSA2) and ISPC) related to the Family Health Unit (FHU) studied in the period from January to July 2009, because this is the period when we had access. For analysis of the data it was made absolute and relative frequency of the data with the help of Excel. Data provided by ISPC allow the Family Health Team (FHT) to characterize the population and epidemiological profile and population's living conditions and assess quantitatively the production of services from USF. Analysis of these data facilitates the process of managerial decision making based on the situational reality of the population's health.

**Keywords:** information systems, Family Health Program, Public Health Nursing

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## **INTRODUCTION**

The health information systems, in the conception of the Unified Health System (UHS), are characterized as instruments capable of supporting a dynamic process of planning, evaluation, maintenance and improvement of actions<sup>(1)</sup>. The production of health information has been taking shape as an important tool of social control, as it allows people to monitor and evaluate the activities of health services. This is also true for the monitoring of the implementation of public resources allocated to the social area from the analysis of the epidemiological profiles of particular sites<sup>(2)</sup>.

In Brazil, the main systems of health information are: the Mortality Information System (MIS), the Information System on live births (SINASC), the Information System for Notifiable Diseases (SINAN), the Hospital Information System of UHS (HIS-UHS), the Ambulatory Information System of UHS (AIS-UHS) and the Information System of Primary Care (ISPC)<sup>(2)</sup>.

The strategy of implementation of the Family Health Program (FHP) in order to promote health care change brings the decentralization of information production in health as an indispensable part. Thus, the starting point for the construction of health information is the collective knowledge of the families residing in a given location and the identification of their health needs<sup>(2)</sup>.

And yet, the strength and value of information (analyzed data) depend on the precision with which data is generated. Therefore, those responsible for the collection should be prepared to assess the quality of the data obtained, which to the level of the Family Health Units (FHU), comprises the Community Health Agents (CHA). They are primarily responsible for obtaining the data that will feed the ISPC<sup>(3)</sup>.

The ISPC is "a system of record of monthly production data for primary care services (medical consultations, immunization coverage, prenatal consultations, nursing procedures,

home visits, etc.), of health status (reporting and monitoring of some illnesses, deaths, births and hospitalizations) and socio-demographic and social-sanitary<sup>(3)</sup>.

Thus, the ISPC, created in 1998, is in accordance with instrument and managing health information of the PSF teams, which is important from the viewpoints of planning activities and services offered in the unit, since it allows to know the socio-sanitary reality of the community attended, as well as, often, the evaluation of the work developed and the adequacy of health services offered. The main instruments for collecting the ISPC are: household registration form and survey of sociosanitary data filled by community health agents (CHA); monitoring reports of risk groups and priority health problems, also filled monthly by the CHAs; and registration forms for activities, procedures and reports, produced monthly by all professionals of health teams. The data generated through the collection records are for the most part, aggregates and some consolidated before they are released in the computer program. After data processing, ISPC indicator reports are produced: family record, report of health status and monitoring of families, and production report and markers for rating<sup>(3)</sup>.

Information systems influence and are influenced by health care model in effect, therefore the ISPC was created as a tool for managing local health systems<sup>(4)</sup>. Thus, "when making it possible to reveal the nature of health programs offered, the ISPC should be designed as a tool to transform the reality of health of a given region and not only as a " diagnosis ", in the sense of knowledge of the lives of these families"<sup>(2)</sup>.

Thus, this article intends to analyze the health situation of the population assigned to a family health unit in recôncavo of Bahia, for the period January to July 2009, which resulted from the experience of one of the authors during the practical classes of the discipline Administration and Planning in Health Services I of the Nursing Undergraduate course, Federal University of Recôncavo da Bahia (UFRB).

## **METHODS**

This is a cross-sectional study, in which data were collected from the consolidated reports of health status (SSA2) and ISPC referring to a USF, located in Santo Antonio de Jesus (BA) in the period January to July 2009. In the data analysis it was performed the characterization of the epidemiological profile and living conditions of the population.

The municipality of Santo Antônio de Jesus is located in recôncavo of Bahia and is spotted 187km of the capital of Bahia. According to the Brazilian Institute of Geography and Statistics (IBGE) 5, the city has a population of 88,768 inhabitants and is known regionally as a center of commerce and services, dubbed the "capital of recôncavo." Moreover, it has a total area of 252,000 km<sup>2</sup> and a population density of 334.35 inhabitants per km<sup>(2)</sup>. As for the regional division of health, is in the macro region east and micro region of Santo Antonio de Jesus, being allocated in the 4th DIRES - Health Regional Boards<sup>(5)</sup>. With respect to the Family Health Strategy (ESF) and the Program of Community Health Agents (PACS), there was an expansion of coverage in the county that currently has 19 USF, 12 satellite units, 2 Basic Health Units (BHU), 21 Family Health teams, 16 oral health teams, with 15 in modality I and 1 in modality II. Moreover, population coverage reached 100% of PACS with 169 Community Health Agents (CHA) <sup>(5)</sup>.

The USF under study works since 2004 in Santo Antonio de Jesus, Bahia, from 7am to 5pm, Monday to Friday. The Family Health Team (FHT) of the unit has one doctor, a nurse, a dentist, an oral health technician, a administrative assistant, two nurse technicians, a general services assistant and eight community health workers. In addition, the unit counts on the Support Center for Family Health (NASF), composed by a nutritionist, pharmacist, psychologist, speech therapist and physiotherapist. However, the activities exempted by NASF occur only in a few days of the week, according to the schedule established by the Municipal Health Department (MHD).

Several activities are developed in the unit, including: the Group of Incentives of Breastfeeding (GIAME), Adolescent Health Program (PROSAD) Community Therapy, Walking Group, physical activity and stretching, educational activities (lectures and waiting rooms); supervised tooth brushing and fluoride application, in addition to ambulatory services conducted by the health team (FHT) to the family, among which we highlight the monitoring of hypertension and diabetes, women's health and monitoring of growth and development. In addition, the unit has a local council in operation since June 2009, whose meetings occur monthly and aims to ensure community participation in the organization of services.

Regarding the mode of operationalization of the Management in the USF, it is established on a rotational basis between dentists and nurses every three months, which means that it is a peculiar mode of management adopted by the municipality, although the Ordinance 648 makes no reference to it.

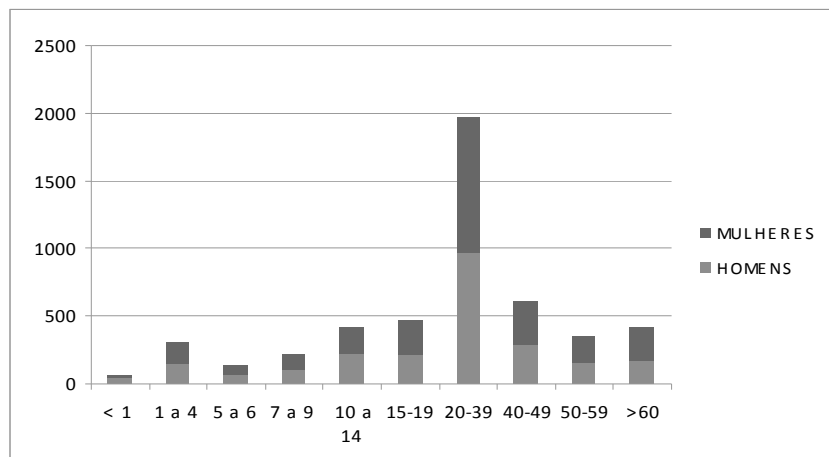
In the first stage of this study, data were collected from the consolidated reports of health status (SSA2) and ISPC referring to the USF chosen. In the second stage, plots were constructed based on the information contained in the analyzed period (01/2009 to 07/2009), which were divided into four groups: the first containing information allowing to know the conditions of housing and population profile of the community; the second containing information about birth rate, mortality, and monitoring of pregnant women; the third with data on hospitalizations and the fourth group containing information about the prevalence and monitoring of diseases such as hypertension, diabetes, leprosy and tuberculosis in the community attended. In the third stage it was carried out the analysis of the health situation of the community in question based on the charts constructed.

Since this is a study that used data from information systems in Health available in DATASUS, it was not necessary the approval by a Research Ethics Committee for its realization.

## RESULTS

At the USF studied 1456 families are registered, reaching a total of 4961 people. Only 3% of residents are covered with health insurance. As to the profile of the population assigned to the USF studied, chart 1 shows the distribution of population by age group and gender.

**Chart 1:** Population enrolled at USF by age and gender, Santo Antonio de Jesus/Bahia, January to July, 2009.



As for the living conditions and housing of this population, according to data collected in the ISPC: 98.70% of the houses are brick made/mud; the water supply is made by the public network (90.93%) and filtration is the most commonly used water treatment at the households (64%), followed by boiling (0.76%) and chlorination (1.37%); the disposal of the predominant garbage is the public collection (97.87%), however, as to the destination feces / urine only 54.12% of homes have sewage systems, open ditches in use, which provides contamination and environmental degradation.

As for birth data in this population for the period analyzed, there were 29 live births, of which only one was not weighed at birth and of those who were weighed only two (7.14%) were underweight (<2500g) at birth, requiring monitoring at home.

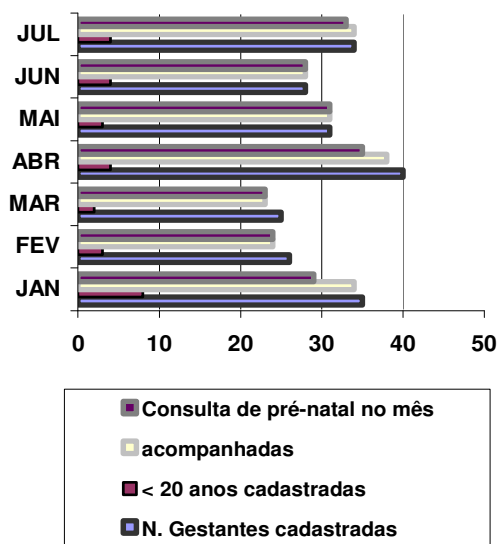
Regarding mortality, there are no records of deaths of children under one year, including those <28 days (neonatal mortality) and from 28 days to 11 months/29 days (post-

neonatal mortality). What makes us think of two possibilities: a) the underreporting of such information, as well as the failure to obtain and generation of such data or b) in this period, there was actually no deaths within this age range, which implies in actions focused on effective health care of newborns and mothers, as well as prenatal care carried out in that community. Regarding the deaths in the period analyzed, 18 were recorded with two deaths of women in childbearing age. There were no deaths in the age group 10-19 years by violence.

In relation to number of pregnant women, there were eight women aged 10-19 years and 26 women aged 20 years and more.

Chart 2 shows the number of pregnant women registered and followed up at the USF studied, besides showing the number of prenatal visits made.

**Chart 2:** Number of pregnant women registered and followed up at USF. Santo Antonio de Jesus (BA), 2009.



As for the 17 children enrolled at the age of 0-3 months and 29 days, we observed that 88.23% of these were exclusively breastfed. With regard to immunization, were vaccinated

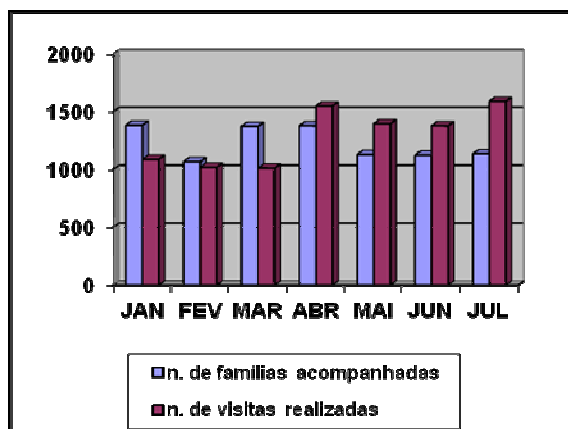
88.33% of the children 0-11 months and 29 days and 84.31% of the children 12-23 months and 29 days.

During the study period it was registered only one case of hospitalization for pneumonia in children under five. We recorded 103 hospitalizations in adults, of which 4.97% represent complications from diabetes.

With regard to diabetes and hypertension, it was observed that the USF studied has 121 diabetic patients and 399 hypertensive patients registered.

Chart 3 shows the number of families monitored and the number of household visits conducted by the health team of the studied family.

**Chart 3:** Number of families monitored and the number of household visits conducted by the USF team. Santo Antonio de Jesus , Bahia, January to July 2009.





## DISCUSSION

The analysis of health status has a territorial logic because in the space human populations are distributed according to socio economic and cultural similarities, thus the analysis of health phenomena in space serves primarily to the synthesis of epidemiological, environmental and social indicators<sup>(6)</sup>.

Therefore, the analysis of health situations depends on a process of "territorialization" of local health systems, to recognize portions of the territory according to the logic of relations among living conditions, health and access to health services<sup>(7)</sup>.

According to the data presented, the number of people served by the USF studied exceeds the maximum limit of 4,000 inhabitants per FHS, as provided for in Ordinance 648/GM of 28 March 2006<sup>(8)</sup>, and the recommended average of 3,000 inhabitants. Moreover, according to data collected from the ISPC (2009), only 3% of inhabitants are covered with health insurance, which means that 97% of the population is dependent on UHS. Thus, it implies extra work for just a FHT, compromising the goals of the Family Health Strategy.

It may be noted that in the studied population (chart 1) there is a difference in the distribution of men and women, although there is a predominance of women in this community. This fact proves to be consistent with the last census of IBGE for the Brazilian population, which would be a reflection of over-male mortality, mainly due to violent causes (those related to homicides, suicides, traffic accidents, etc.)<sup>(9)</sup>. Another fact highlighted is that the population of the USF studied shows a predominance of individuals aged 20-39 years, considered young adults.

Considering the number of adult males, the data indicate the need to plan actions for reaching this group, as for example, group educational activities, specific care as recommended by Men's Health Policy.

According to Vieira<sup>(10)</sup>, "the adult is the individual who has reached biological and psychosocial maturity, which in our society begins around 18-21 years with health problems or risk of health problems, acute or chronic, of which genesis and expression include the biological, behavioral, emotional and socio-cultural elements."

In this sense, individuals would be endowed with different physical and cognitive abilities, imposing specific needs according to age<sup>(10)</sup>. Thus, the planning of health for this community should consider the high number of adults and the specifics of this phase as

well as the most common health disorders, so that we can fulfill the principle of solving of the FHT.

Furthermore, one must consider that young adults account for an age group that not only expresses an interest in health and health promotion, but also responds enthusiastically to suggestions that show how the practices of lifestyles can improve health<sup>(11)</sup>.

Observing chart 1, we highlight other population groups that should also be considered in the process of managing and planning of actions and practices in health services, such as, the elderly and adolescents.

As for the percentage of elderly (8.37%), there is a need to take into account the particularities of the elderly in the treatment and monitoring of chronic diseases, especially hypertension and diabetes, immunization, health promotion, reduction of injuries (falls), among others . Hence the importance of rethinking organizing strategies and programming services that seeks to address this age group.

Moreover, it is observed that 17.78% of the population is teenagers, a percentage that draws attention because it may be the result of the introduction of child care, better nutrition, immunization programs, among others, which resulted in the reduction of infant mortality and consequently an increase in adolescents.

The profile analysis of morbidity in Brazil of this population group has revealed the presence of chronic diseases, psychosocial disorders, drug dependence, sexually transmitted diseases and problems related to pregnancy, childbirth and puerperium<sup>(12)</sup>. Therefore, this problem requires of the health team of the family action strategies to reduce these health disorders, involving other sectors of society (like school), the Community and especially parents of these teenagers, so they can be guaranteed better conditions of life to that specific public.

The data on housing and living conditions of the studied population show that the family health team should consider the living conditions and housing of the enrolled population in order to propose strategies for addressing the problems and articulate intersectoral partnerships, considering that these problems exceed competences of the health sector, requiring the inclusion of other sectors such as urban planning, infrastructure, education and social development.

From the Consolidated of registered families, it was observed that in relation to the number of pregnant women, as a condition mentioned, were registered eight women aged 10-19 years and 26 women aged 20 and over, which means 23.52% of pregnant women are teenagers.

The teenage pregnancy in some countries, including Brazil, is a public health problem, since it can lead to obstetric complications, with repercussions for the mother and the newborn, as well as psychosocial and economic issues<sup>(12)</sup>. Thus, the educational and prevention actions aimed at this public should consider the knowledge of the

socioeconomic and cultural reality of these adolescents, as well as assess the predisposing factors to ensure that these actions are appropriate to that community.

From the analysis of Chart 2, it is observed that from January to April 2009, the number of pregnant women accompanied and prenatal consultations was lower than expected in relation to the number of pregnant women registered in the unit during the same period. However, in the following months it is observed that there is a commonality between these data. One of the goals of the FHT is to capture 100% of pregnant women for a prenatal care program and monitoring of at least six consultations<sup>(13)</sup>.

The registration and monitoring of goals achieved by the team is essential to identify situations that could be avoided by planning and scheduling the offer of health services to the population.

As to the consultation of prenatal care started in the first trimester of pregnancy, it was recorded an average of 23 pregnant women (76.67%), a value that can be increased, since prenatal care has a recognized positive effect on the health of women and the fetus.

In this sense prenatal care is the "period before the birth of the child, in which a set of actions is applied to the individual and collective health of pregnant women. During this period, women should be followed up from pregnancy, so that it is possible for them, when necessary, to perform clinical laboratory tests, receive guidance and take prophylactic medication and/or vaccines"<sup>(14)</sup>.

Therefore, health promotion is a concept that spans the entire spectrum of life. One study showed that the health of a child may be affected, either positively or negatively, by the practices of health of the mother during the prenatal period<sup>(10)</sup>, which reaffirms the importance of this type of care during pregnancy.

Breastfeeding is a practice that brings benefits to the health of the mother and child, as well as it helps reduce costs with breast milk substitutes. Its relationship with the decreased incidence of infectious diseases and infant mortality has been evidenced in several studies<sup>(15)</sup>. In this respect, of the 17 registered children aged 0-3 months and 29 days, 15 were exclusively breastfed and two in mixed feeding. We can attribute to the activities of GIAME developed at the USF studied, the fact that 88.23% these children are exclusively breastfed.

In the analyzed period USF held the immunization of 88.33% of children 0-11 months and 29 days and 84.31% of children 12-23 months and 29 days. This vaccination coverage shows that parents worry about child care, but requires greater articulation of basic health care to increase 100% the immunization of these children. Also during the period analyzed, we observed that of the 60 children 0-11 months and 29 days registered, only two had malnutrition and of the 51 children aged 12-23 months and 29 days, seven cases of malnutrition were found. Regarding the number of children under 2

years who presented diarrhea, this value did not exceed 1% of the average of 111 children registered in the period. It was administered oral rehydration at the clinic on 100% of children who were consulted for diarrhea.

It can be argued that in practice, health services in Brazil, are organized programmatically, considering that the programming of the service is still set on population groups or health problems in an isolated manner, meaning that it is not possible, thus to ensure the principle of completeness according to the purpose of the Unified Health System (UHS). However, in view of this situation it is necessary to propose collective and integrated intervention measures.

Also, it is noted that of the 340 children under five years living in this community, only one case of hospitalization for pneumonia was recorded in the period analyzed, with no cases of hospitalization for dehydration in this age group, was found in this population. Nor were recorded cases of hospitalization for alcohol abuse in persons 15 years or more and no cases of hospital admissions in psychiatric hospitals. However, we cannot say that these problems are not present in the community served by the USF under study.

And yet, 103 hospitalizations during the period studied were registered, meaning that the cases of hospitalization for complications of diabetes represent 4.97% of the total of the diabetic patients enrolled in the unit, a value that can be considered small. Therefore, we reaffirm the importance of linking people living with these diseases to health facilities, guaranteeing them monitoring and systematic treatment, preventing complications, which is decisive not only to ensure the quality of life but also to prevent hospitalization and reduce the social cost and the cost incurred by the UHS associated with chronic diseases<sup>(16)</sup>. For this, there should be training activities for professionals and service reorganization.

Just as Diabetes Mellitus (DM), the "systemic hypertension (SH) is a very prevalent condition that can be associated with other risk factors for cardiovascular diseases" 17. The USF studied has 121 diabetic patients enrolled in the period from January to July/2009, and approximately 92% of these are accompanied at the unit.

The consequences of diabetes in the long term, can affect almost all organic systems and are a major cause of disability 11. Thus, in the logic of the FHT, the registration and tracking of 100% of diabetics users are necessary to allow effective control of diabetes, avoiding its complications and the overloading of the hospital system as well as increased spending for meeting the complications entailed by this disease.

In addition, the USF studied has 399 hypertensive patients enrolled in the period from January to July/2009, and approximately 91% of these patients are monitored in the unit. Note that the prevalence of hypertensive individuals in the population aged 20 years or more, enrolled at the USF in question corresponds to 12%. Therefore, it is clear that Hypertension is a major health problem within this population, which requires planning of

preventive actions, of control and health promotion by the USF team responsible for this territory.

Of the diseases listed in this population, hypertension and diabetes appear as the main health disorders at the age of 15 years and more, which reaffirms the importance of these data to define the epidemiological profile of this community and to plan actions for prevention and control of hypertension and diabetes.

People presenting hypertension are proved to be frequently asymptomatic, and therefore, once identified should be monitored at regular intervals for being a permanent condition<sup>(11)</sup>. Furthermore, "prolonged elevation of blood pressure injures later, the blood vessels throughout the body, especially in target organs such as heart, kidney, brain and eyes"<sup>(11)</sup>.

Therefore, the integral assistance (continuous, rationalized, following referrals to services of clinical or hospital reference) of hypertensive and diabetics, educational and intersectoral actions, the construction of a local plan for addressing the determinants of the health-disease process, involving community are important in the transformation of the reality of health of the population enrolled to USF.

Regarding infectious diseases, the ISPC shows the number of cases of leprosy and tuberculosis as well as its condition of registration and monitoring. In relation to leprosy, there were no records of people registered and accompanied in this unit during the period analyzed. The prevalence of TB in people aged 20 and over is 0.03%, having been recorded during January-July 2009 only five cases of tuberculosis registered in the unit, although only three of these cases were accompanied by the team of the USF studied. This may be related to the fact that the municipality of Santo Antônio de Jesus has a reference center for the treatment of tuberculosis and leprosy, to where are referred the vast majority of these cases.

However, following recommendations of the Ministry of health<sup>18</sup>, cases of tuberculosis confirmed should be monitored and treated in the Basic Health Unit (BHU). Even suspected cases of tuberculosis that have the diagnosis confirmed in the reference units, those with persistently negative bacilloscopy or without sputum for exams and extra pulmonary tuberculosis cases that are referred back to the BHU original, must be accompanied in this unit up to discharge.

The user should only be referred to a reference unit of tuberculosis to carry out treatment when: there is a history or clinical evidence of acute liver disease (hepatitis) or chronic (cirrhosis, alcoholic liver disease), the patient is sick with AIDS or HIV positive sera, or when there is a history or clinical evidence of nephropathy (chronic renal failure, patients on dialysis)<sup>(18)</sup>.

The same applies regarding the treatment of leprosy cases that should be monitored routinely in basic units and Family Health Units in which they are registered. Thus, it is

clear that of the FHU teams are primarily responsible for preventive, promotional and curative actions of tuberculosis and leprosy.

This commitment, however, requires that the public be informed about the signs and symptoms of these diseases, having easy access to diagnosis and treatment and that patients suffering from leprosy/tuberculosis can be guided individually and together with their family throughout the process of healing. Furthermore, it requires skilled professionals to handle all these aspects, as well as other measures to overcome the difficulties of decentralization of the treatment of leprosy and tuberculosis in the city.

Chart 3 shows that in relation to the first quarter of 2009, the number of visits by community health workers was below the number of registered families. Likewise, in the following months in which the number of home visits was high, the number of pregnant women, diabetic and hypertensive patients accompanied in the unit also increased in the first quarter.

Data regarding home visit (RV) are described in order that it appears as a key element of the FHT, "as a way to prepare the professionals for their insertion and knowledge of the reality of life as well as establishment of links with it; seeking to assist different health needs of people, being concerned with the existing infrastructure in communities and health care of families "(19-20).

## **CONCLUSION**

From the analysis of data from the ISPC, the USF team has the opportunity to know the demographic and social health profile of a given area, identifying their needs and their housing conditions and basic sanitation that can interfere with the health-disease process. In this sense, the management actions should be focused on the articulation with other sectors in an attempt to lift solutions to problems found in that territory. However, for this to happen, it is essential to sensitize the community about the importance of their participation in the local board of health, so that it can exercise de facto the control of the society and, thus, achieve improvements.

The management actions should include quantitative assessment of the production of services by the the Family Health Team, such as immunization coverage, medical and prenatal care, home visits and nursing procedures, among others. This parameter can serve to identify the causes of low productivity in a particular sector, for example. Therefore, in the case of low immunization coverage, it can stimulate the team to conduct an active search, when the number of hypertensive and diabetic patients followed in the unit is less than the number of registrations, evaluate the need to conduct home visits, and so on.

Therefore, the data collected in this study reaffirm the ISPC as an important management tool, because its analysis allows to plan actions and make local decisions, as it allows the understanding and analysis of the socio-sanitary reality of a given area, monitor the implementation of actions and often, make adjustments and evaluate the transformation of the health situation.

For this, however, it is necessary that the Family Health Units team holds skills and knowledge necessary for the proper use of this information so that one can discuss and explain the determinants of the health-disease process identified and achieve the team's work through practical actions that actually seek to change the health situation of the registered population.

The way this instrument has been used by the health team in FHU and the changes that are being produced raises several arguments, since professionals are among the many limitations that the service displays and require the development of skills so that one can deal with the deficit of personnel, materials, resources, and with the growing demand of users. However, these points will be discussed in due course in other jobs.

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