https://doi.org/10.5205/1981-8963-v12i5a230982p1454-1462-2018

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# INTEGRATIVE REVIEW ARTICLE

FAMILY HEALTH STRATEGY IN THE PREVENTION OF DENGUE, ZIKA VIRUSES AND CHIKUNGUNYA FEVER

## ESTRATÉGIA SAÚDE DA FAMÍLIA NA PREVENÇÃO DE DENGUE, ZIKA VÍRUS E FEBRE CHICUNGUNHA

ESTRATEGIA SALUD DE LA FAMILIA EN LA PREVENCIÓN DE DENGUE, ZIKA VIRUS Y FIEBRE CHIKUNGUNYA

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## ABSTRACT

**Objective:** to identify scientific production on primary care with a view on the prevention of dengue fever, Zika virus and Chikungunya fever. **Method:** integrative review, with search in the LILACS, MEDLINE and CUMED databases, in the time cut from 2011 to 2016. The data was analyzed with the Thematic modality of the Content Analysis proposal. **Results:** primary care is highlighted in this study and should be the focus for population recruitment and awareness for the prevention of epidemics, not neglecting them and working together for health education. **Conclusion:** dengue, Zika virus and Chikungunya fever are important public health problems in which the number of infected persons is relevant each year. The main prevention is the fight against the vector, since there are no vaccines available. **Descriptors:** Prevention and control; Nursing; Dengue; Zika virus; Health education; Review.

### RESUMO

**Objetivo:** identificar a produção científica sobre a atenção primária com vistas à prevenção de dengue, zika vírus e febre chicungunha. **Método:** revisão integrativa, com busca nas bases de dados LILACS, MEDLINE e CUMED, no recorte temporal de 2011 a 2016. Os dados foram analisados com a modalidade Temática da proposta da Análise de Conteúdo. **Resultados:** a atenção primária destaca-se neste estudo e deve ser o foco para a captação e a conscientização da população para a prevenção de epidemias, sendo preciso não as negligenciar e trabalhar em conjunto para que seja realizada a educação em saúde. **Conclusão:** a dengue, o zika vírus e a febre chicungunha são importantes problemas de saúde pública em que o número de pessoas infectadas é relevante em cada ano. A prevenção principal é o combate ao vetor, uma vez que não existem vacinas disponíveis. **Descritores:** Prevenção e controle; Enfermagem; Dengue; zika Vírus; Educação em Saúde; Revisão.

### RESUMEN

**Objetivo:** identificar la producción científica sobre la atención primaria con vistas a la prevención del dengue, zika virus y fiebre chikungunya. **Método:** revisión integrativa, con búsqueda en las bases de datos LILACS, MEDLINE y CUMED, en el recorte temporal de 2011 a 2016. Los datos fueron analizados con la modalidad Temática de la propuesta del Análisis de Contenido. **Resultados:** la atención primaria se destaca en este estudio y debe ser el foco para la captación y la concientización de la población para la prevención de epidemias, siendo preciso no descuidarlas y trabajar en conjunto para que sea realizada la educación en salud. **Conclusión:** el dengue, el zika virus y la fiebre chikungunya son importantes problemas de salud pública, donde el número de personas infectadas es relevante cada año. La prevención principal es el combate al vector, ya que no hay vacunas disponibles. **Descriptores:** Prevención y control; Enfermería; Dengue; Zika Virus; Educación en Salud; Revisión.

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## INTRODUCTION

Dengue, Zika virus and Chikungunya fever are important public health problems. The number of infected people is relevant each year and dengue epidemics are common in several national states, and dengue is one of the themes that are listed as health research priorities.

The issue is of extreme importance for public health, with primary care as the gateway to other services. At this core, physical examination and careful clinical analysis should take into account epidemiological factors that may lead to early diagnosis and treatment, reducing avoidable costs with hospitalization and invasive procedures. It is also worth mentioning that the study aims to give greater visibility to the theme so that more research is carried out along this line and a better action plan based on specific needs is developed.

For effective care, one must consider not only the disease, but the context where the individual and his illness are inserted. "Primary care explains the preventive trait of basic care and is an important determinant for the implementation of protective measures in the cases of Dengue, Zika and Chikungunya".<sup>1</sup>

Dengue endemics and the increasing number of cases of Zika virus and Chikungunya fever lead to the need for studies that analyze which preventive measures are currently being taken by the community, based on the nurses' role in the family health strategy (FHS), so that, in this way, these studies corroborate a better orientation of the nurse in the education of the population about the preventive measures and consequent of the numbers reduction of cases, hospitalizations and health problems.

As a gateway into the system, primary care must be the focus for population uptake and awareness for epidemic prevention. We must not neglect the cases of dengue, Zika and Chikungunya and work together for health education to be carried out that teaches and encourages protective attitudes towards the vector. This study brings these concepts to discussion.

This study aims to contribute to the research and extension area as well as to the improvement of care by indicating how the nurses' actions are being carried out in the prevention and combat of these arboviruses.

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## OBJECTIVE

• To identify the scientific production on primary care for the prevention of dengue fever, Zika virus and Chikungunya fever.

## **METHOD**

A bibliographic review of the literature, characterized as integrative review e2-4 composed of six stages.

In the first stage of this study, the research question was formulated: how the family health strategy is being implemented in relation to the prevention of dengue fever, Zika virus and Chikungunya fever?

The search of the articles was carried out in the databases LILACS - Latin American and Caribbean Literature in Health Sciences, MEDLINE - International Literature in Health Sciences and CUMED - National Center of Information of Medical Sciences of Cuba, in the year of 2016.

For data collection, descriptors and keywords in Health Sciences (DeCS) were used: Prevention and Control; Nursing; Dengue; Zika virus; Health Education and Review, completing the path presented by the flow chart below. However, it is noteworthy that, in the research, only studies were found with the junction of descriptors Prevention and Control, Nursing and Dengue. The Boolean operator "AND" was used between them for the search.

In the second stage, the inclusion criteria were defined: articles carried out in the period from 2011 to 2016, with full texts available on the subject in Portuguese, English or Spanish and performed by nurses. Articles outside the temporal cut of 2011 to 2016 were excluded, without complete texts available on the subject, texts in other languages without being Portuguese, English or Spanish and that were not written by nurses.

In the third stage, the primary selection of the articles occurred by reading titles and abstracts. And the secondary selection, after reading the full text and evaluating the adequacy of the content with the proposed objective.

In the fourth stage, data analysis was performed; in the fifth step, the discussion of the data and in the sixth step, the synthesis of the review was presented.

17 articles were found after using filters. With the withdrawal of repeated articles and selection, we obtained a total of five articles with which this study was developed.

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Figure 1. Refining flowchart of the research. Rio de Janeiro (RJ), Brazil, 2016.

Five articles were selected that were within the criteria established for this study, three (60%) articles from the LILACS database, one (20%) MEDLINE article and one (20%) article from the CUMED database. It was observed that two articles are from the year 2011 (40%); an article, from the year 2012 (20%); an article, from the year 2013 (20%) and an article is from the year 2014 (20%).

Regarding the methodology, a crosssectional study (20%) was observed; two descriptive and exploratory studies (40%); a study of community intervention (20%) and a study comparing health indicators (20%). In relation to the subject, it is observed that 100% of the articles found dealt only with the prevention of dengue.

The data was analyzed according to the Thematic modality of the Content Analysis proposal. This proposal intends to identify the nuclei of meaning that make up the communication and whose presence or frequency of appearance may have meaning for the issues under treatment.<sup>5</sup>

# **RESULTS AND DISCUSSION**

study of community intervention (20%) and a								
Title	Author	Year	Loca tion	Publication	Methodology	Results		
Incorporation of dengue control activities by the community health agent	Luiza Helena de Oliveira Cazola, Edson Mamoru Tamaki, Elenir Rose Jardim Cury Pontes, Sonia Maria Oliveira de Andrade	2014	LILACS	Journ of Public Health	The evolution of selected indicators of the Family Health Strategy and the National Program for Dengue Control in the city of São Gabriel do Oeste and Rio Verde in Mato Grosso were compared.	The two municipalities maintained similar evolution in the indicators of dengue control in the period. São Gabriel do Oeste presented a better situation in relation to the Family Health Strategy in 2002, in three of the four indicators studied. However, this situation was reversed at the end of the period, when the municipality was overtaken by Rio Verde of Mato Grosso in three of the four indicators analyzed.		
Knowledge, attitude, and practice of dengue disease among healthcare professionals in southern Taiwan	Tzong- Shiann Ho; Mei-Chih Huang; Shih- Min Wang; Hsian-Chou Hsu; Ching- Chuan Liu	2013	MEDLINE	Science and collective health	Cross-sectional study using a structured questionnaire	After the application of the questionnaires, it was verified that 3/4 of the health professionals were not able to respond to the moment of the notification of dengue cases. The nurses scored more than the physicians (0.34 vs 0.16, p <0.01). In addition, 57.2% of health professionals failed to respond correctly to the calendar of typical skin eruptions		

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Lima BB, Farias SNP de, Coropes VBAS et al.

Family health strategy in the prevention...

						that occur in patients with dengue.
La intersectorialidad en la prevención del dengue en un área de salud de Santiago de Cuba	Meinardo Zayas Vinent, Jorge Cruz LLaugert, Anuvis Torres Sarmiento, Pura Salinas Duany	2012	CUMED	MEDISAN	Action- Participatory Research	When classified according to the risk, 12.4% of the housing in the health area were very high risk; 10% were high risk and the others (72.5%), medium or low risk. From this detection, interventions were performed and, out of a total of 72 risks detected, 65 were solved, corresponding to 90.3% of the total

Figure 2. Systematization of three articles within the established criteria for the work. Rio de Janeiro (RJ), Brazil, 2016.

In the article on the Incorporation of dengue control activities by the community health agent (CHA), the importance of the work process of the CHA is explained and it was realized that they are aware of their role as a promoter of health education reflecting in the incorporation of actions for the control of dengue, in its work routines, in accordance with the one recommended by decree 44 of the Dengue Control Program.

The article clarifies that the active participation of the Community Health Agent in the incorporation of the actions of the dengue control program is feasible and makes explicit the need to value this category further by offering salaries adequate to its role within the Family Health Strategy.<sup>6</sup>

In the second article described above, there was no material to support the discussion of prevention. Therefore, it focused more on assessing the knowledge of professionals about the disease.

The promotion of health, through community awareness, is also pointed out in a

study carried out in Cuba, being seen as a vital factor for prevention through integration with the community and primary care for the development of actions together. In relation to dengue, the only feasible way, pointed out by the study, is the control of vectors, which is only possible through intersectoriality, that is, the active participation of the community and health professionals. The study also points out that there are determinant factors, such as the careful analysis of the territory and the population, identifying areas of greater risk, and the political will, which will collaborate by providing trained professionals to the population. The three pillars (population, trained professionals and government) are capable of sustaining community actions to prevent dengue. "Only the health sector and the community, although united, do not support the control of the disease alone, since some factors are beyond the competences of the same ones."<sup>7</sup>

Title	Author	Year	Location	Publication	Methodology	Results
Seasonal communication on dengue in socio- educational groups in primary health care	Líliam Barbosa Silva; Sônia Maria Soares; Maria Teresinha de Oliveira Fernandes; Ana Luiza de Aquino	2011	LILACS	Journ of public health	Qualitative, descriptive and exploratory study with 25 coordinators of socio-educational groups distributed in eight basic health units in Belo Horizonte, MG.	Three thematic nuclei were found: seasonal communication; contents discussed and channels that disseminate information about dengue and information versus communication for action. Dengue prevention and control activities in the groups were mainly addressed in times of outbreaks

Family health strategy in the prevention...

						based on actions previously programmed by the Ministry of Health. Topics addressed included epidemiology, life cycle, modes of transmission, symptomatology, prevention, home visit of the zoonosis team and vaccination against dengue.
Dengue control in two urban areas of central Brazil: residents' perception	Luiza Helena de Oliveira Cazola; Elenir Rose Jardim Cury Pontes; Edson Mamoru Tamaki; Sônia Maria Oliveira de Andrade; Cássia Barbosa Reis	2011	LILACS	Health and society	This is a descriptive, exploratory study with a qualitative approach, carried out in two small municipalities, Rio Verde de Mato Grosso and São Gabriel do Oeste, in Mato Grosso do Sul / MS	In both municipalities, the population is satisfied with the work of the CHA revealing that, in SGO, the accumulation of dengue control activities did not affect the quality of its service. In RVMT, the population considers that work with dengue is specific to the ECA, but manifests greater satisfaction with the CHA performance. Despite the overload of ACS, the study reveals the potential that the work organization adopted by SGO has for improving dengue control in basic care.

Figure 3. Systematization of two articles within the established criteria for work. Rio de Janeiro (RJ), Brazil, 2016.

A second article also addresses the actions of the CHA in the community. However, from the point of view of the residents, satisfaction with the quality of the service provided, both in promoting the health of the dengue control program and in other actions, is possible to be perceived. Even with work overload, the quality of service provided was not affected. The link between the residents and the Health Agents contributes positively to the process of health promotion when compared to the Endemy Control Agents (ECA).

It is highlighted, in the text, that the exclusive presence of CHA, as control agents in endemias, can present several advantages such as the decrease in number and duplication of visits on the same subject, fewer repetitive orientations and the establishment of a greater bond. However, the same fact can be seen in a negative way by a greater accumulation of functions. The CHAs must apply larvicides in the houses and carry out the surveys demanding more time

and work overload. In this way, other care lines may not have the coverage they should have through the agents' visits. In general, it is possible that the CHAs work on dengue control through protective measures.<sup>6</sup>

In addition to the work of CHA, other ways of combating dengue by family health units have emerged as an emerging theme, such as communication between professionals and the community through groups, where dengue has been addressed mainly in periods of the outbreak of the disease, for seeking greater support and community adherence to protective measures to reduce the number of cases. However, it is pointed out by the study that there was a predominance of vertical information transfer techniques, which can impose a distance between the professional and the community, making it difficult for the user to see himself as an active part of the disease prevention process for the change of reality.

Family health strategy in the prevention...

The periodicity of the group should also be discussed, since the theme requires a set of continuous activities throughout the year, which will only be performed based on the actual awareness of the users of the service, is transmitted in a didactic way, valuing the identity of the group so that a reflexive discussion opens and based on the open dialogue and the problematization of the theme.<sup>8</sup>

> "Although educational activity is considered a potential proposal to promote popular mobilization in the control of dengue.<sup>8</sup> "Studies show that educational activities do not always result in effective actions that reduce the prevalence of the disease".<sup>8</sup>

Knowledge was also identified as а determining factor for the dengue prevention process. It should be emphasized that knowledge, together with the actions of health education provided by primary care professionals, contributes to the reduction of diseases and prevention. However, knowledge is not enough, since it is only capable of changing the reality of a population when coupled with good methods of service. It has also been observed in the study carried out in Taiwan that a continuing education is required for professionals to accumulate more and more knowledge about the disease and to report it correctly by generating more reliable data and indicators. In this context, it is important for the health professional to clearly distinguish these major diseases from each other: dengue fever, Zika virus and Chikungunya fever.9

Dengue is classified as arbovirose and may be symptomatic or asymptomatic in infected individuals. When symptomatic, it presents as a systemic disease, dynamic and of broad clinical spectrum. The disease has three phases. The fever stage begins abruptly and lasts for two to seven days. The fever presented by the individuals, in general, is high, between 39°C and 40°C. During this phase, the rash may also occur, which is usually of the maculopapular type and occurs in about 50% of cases. The rash may appear on the whole body, with or without pruritus. Other symptoms are also common such as anorexia, vomiting and diarrhea. Diarrhea, in general, is not bulky. After the end of this phase, most of the individuals progressively evolve with reduction of symptoms and improvement of the overall picture. However, some may evolve into the critical phase. In it, the patient has an improvement of the fever symptom, but the alarm signals appear: intense and continuous abdominal pain; persistent vomiting; accumulation of liquids; postural hypotension and / or lipothymia; hepatomegaly (liver palpable more than two centimeters below the rib cage); mucosal bleeding; lethargy; irritability and progressive increase in hematocrit. In general, this symptomatology is due to the increase in vascular permeability and indicates a possible risk of shock due to plasma extravasation.

Severe dengue is characterized by this extravasation of fluids and may lead to accumulation of these in interstitial spaces or shock. In the case of shock, a critical volume of plasma is extravasated and has a rapid onset and short duration, leading to bleeding or severe cardiac changes, as well as changes in other organs and systems. In the recovery phase, improvement of the general clinical picture occurs. In cases of severe dengue, the extravasated fluid is reabsorbed. This phase may be accompanied by skin rash and must be carefully evaluated, since it facilitates the installation of bacterial infections that may aggravate and contribute to the death of the individual.<sup>10</sup>

The clinical picture of dengue fever in children may present asymptomatically, as well as in adults, or with a febrile syndrome with nonspecific symptoms such as: adynamia, drowsiness, refusal of food and liquids, vomiting, diarrhea or soft stools. In these cases, it is important to maintain an epidemiological surveillance in dengue cases, this criterion can provide since the differential diagnosis favoring the start of adequate treatment. In children less than two vears old, greater vigilance should he maintained, as the symptoms may manifest in the form of persistent crying, adynamia and irritability, which may be confused with other febrile conditions that are common to the age group. When the initial condition goes unnoticed, it is common to detect the disease in its severe phase and, in general, the worsening of the child's health occurs more suddenly, which facilitates the identification of alarm signals.<sup>10</sup>

The onset of the clinical picture of dengue can be easily mistaken for other arboviruses and febrile syndromes. As a result, it is important that management be done for the treatment of dengue, since, when compared to other diseases, it is the one with the greatest risk for diseases and mortality.<sup>10</sup> The tie test must be performed in a mandatory way in children and adults with symptoms suggestive of dengue. It aims to prevent injuries with the early detection of individuals who have extravasation of fluid into the extravascular space.<sup>10</sup>

## Family health strategy in the prevention...

Zika virus (ZKV) is classified as causing a mild disease in both adults and children. However, there is strong current evidence linking ZKV to neurological symptoms and fetal malformations. With this association of ZKV to microcephaly, it is evident the need for the Ministry of Health to intensify care during prenatal care.<sup>10-11</sup>

ZKV is a flavivirus. The disease transmitted by the Aedes aegypti mosquito is poorly described and, in general, only presents clinical manifestations in 20% of human infections. There is no age group or sex more affected by the disease and because it is selflimited, it leads to a low number of hospitalizations. Symptomatic infections may present with low fever, myalgia, atralgia, macropapular rash, among other symptoms. The main differentiation between the other exanthematic diseases is the more pronounced exanthematic presentation without а platelet significant change in the and counts. leukocyte The recommended treatment based the medical is on prescription of an antihistamine for the treatment of rashes and an antipyretic for the control of fever when necessary.<sup>12</sup>

Chikungunya fever is classified as an emergent arbovirose transmitted by Aedes mosquitoes. The disease presents as a febrile syndrome with sudden onset, but debilitating, that, due to the intense joint pain that causes, causes the individual to "walk crooked". Arthralgia persists, even after the end of the fever, and may last from months to years. In some settings, it is possible that rheumatoid arthritis develops that interferes with the quality of life of individuals. The disease can range from lighter to more severe cases including the occurrence of deaths in patients with associated comorbidities. It can also generate neurological disease in the elderly and neonates occurring cases of maternal-fetal vertical transmission. This transmission, although uncommon, causes complications, serious among them, encephalopathy.9

It is worth noting that the study identifies that the high incidence rate of these arboviruses in Brazil is directly related to the economic model, with the disorderly growth of large urban centers, combined with the industrial expansion of non-biodegradable materials, the favorable climatic conditions and the intense flow of travelers and loads, which leads to a scenario that makes it difficult to eliminate the vectors.

In areas of poverty such as poor communities, many common in the municipality of Rio de Janeiro, there are several possible breeding sites such as water boxes with broken lids, which are difficult to control due to low purchasing power for repairs. In this way, a permanent focus is created in the community and, as if that were not enough, there is a cultural habit of the children to find in these areas, near the water boxes, a form of leisure, for example, to release kites. This encourages contagion and increases the risk of creating new outbreaks, as there is a possibility that more lids will break.<sup>13</sup>

The anthropophilic behavior of the Aedes aegypti type mosquito allows the species to found mainly in areas of human be agglomeration so that the blood repast can be performed. On the other hand, Aedes albopictus has different behavior, being more of easily found in areas smaller agglomeration. In this way, the dissemination of diseases occurs indiscriminately in both urban spaces.<sup>9</sup>

Regarding primary care and the family health strategy at the heart, it is worth mentioning that the National Primary Care Policy (NPCP) started as a result of the development of the UHS (UNIFIED HEALTH SYSTEM) and was developed from the idea of decentralization, based on the principle of attending to the place closest to people's lives, with special emphasis on areas of risk and vulnerability, which should preferably be the gateway to health services and guided by UHS principles. Basic care is characterized by a set of actions that encompass the promotion and protection of health, preventing injuries and dealing with diagnoses, rehabilitation and harm reduction, as well as several other actions that promote health maintenance. These basic health units aim to play a central role in guaranteeing access to a quality health service for the whole population, observing situations of vulnerability and risk criteria.<sup>14</sup>

The issue of territoriality was already discussed even before the implementation of the current basic health care policy<sup>15</sup> and made explicit the need to know the determinants of the territory so that health care is effective and effective. In this context, the new primary health care policy is strengthened not only by the ease of access but also by the Family Health Strategy (FHS) characteristic of working within the territory in order to reorganize the current model adopted by the basic health units as a strategy expansion and gualification of of the assistance, besides serving as a potentiator of the consolidation of the approach offered by Basic Attention, acting through the the rRegarding primary care and the family health

strategy at the heart, it is worth mentioning that the National Primary Care Policy (NPCP) started as a result of the development of the UHS (UNIFIED HEALTH SYSTEM) and was developed from the idea of decentralization, based on the principle of attending to the place closest to people's lives, with special emphasis on areas of risk and vulnerability, which should preferably be the gateway to health services and guided by UHS principles. Basic care is characterized by a set of actions that encompass the promotion and protection of health, preventing injuries and dealing with diagnoses, rehabilitation and harm reduction, as well as several other actions that promote health maintenance. These basic health units aim to play a central role in guaranteeing access to a quality health service for the whole population, observing situations of vulnerability and risk criterialutividade, besides the principles and directives of UHS.<sup>14</sup>

The vision that basic care should be the gateway to the health network comes from before the creation of the UHS, with the implementation of the Integrated Health Action Program (IHAP), in 1982. It aimed at the integration of institutions which were maintained by several governmental spheres and proposed the creation of a system of reference and counter-referral that had been inserted within the SUS's policy and continues to the present day, more elaborately, with the question of matricity. An example of this consonance nowadays, with the increase in the number of microcephaly cases associated with ZKV, is the FHSN (Family Health Support Nucleus), which enters as a great partner to request this matrix support for children and families affected **ZKV**-associated by microcephaly.<sup>16</sup>

Still on the promotion of health and the prevention of infectious diseases in the contemporary world, in the 60's, the concepts of prevention were developed, being it primary, when it occurred before the problem or pathology appeared; secondary prevention, when it occurred through early diagnosis and before the onset of symptoms and tertiary prevention, which is based on the rehabilitation of the individual.<sup>17</sup>

In its 2002 health promotion letter, the Ministry of Health already presented a proposal for a preventive policy based on an intersectoral approach, with social participation and co-responsibility between professionals and users, which sought to formulate policies effective and healthfriendly measures to improve the quality of life of the population. It is also proposed a reorganization of the health system with a Family health strategy in the prevention...

focus on prevention and health promotion and not on tertiary care services.

## CONCLUSION

It was evident the importance of the participation of the primary care professionals in the control and prevention of dengue, Zika and Chikungunya, however, it was evident the lack of studies that address prevention and combat, even with the prevention measure of both being the same. The two other diseases (Zika and Chikungunya), and not only dengue, need to be made more visible due to the increasing numbers of cases in 2015 and 2016.

The actions and studies presented are complemented by pointing out the importance of professionals and adequate and didactic actions that actually modify the population's attitude towards diseases, based on the link and health education actions well structured and planned throughout the year, so that they become a common practice among the population and not an emergency behavior in the face of the crisis. Thus, this is expected to be directly reflected in the reduction in the number of cases of these diseases.

Knowledge and updating are important allies in the pursuit of disease prevention and control. Thus, continuing education and continuing education contribute as a way of preparing and adapting the work process and should be established both among physicians and nurses, as well as in CHA and other team members, so that assistance to the population is made comprehensive and multidisciplinary.

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Submission: 2017/12/20 Accepted: 2018/03/27 Publishing: 2018/05/01

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