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DATA ABOUT THE EPIDEMIOLOGICAL TRANSMITTED DISEASES AND WATER SERVING NOTIFIABLE IN BOM JESUS DA SERRA, BAHIA

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ABSTRACT

Water is the primary element in life, in Which it has to meet the minimum requirements required by Order No. 2,914 / 2011 for quality assurance, being Necessary to be in favorable conditions, suitable for human consumption and in sufficient quantity to meet the needs, for Health to provide protection and economic development (Ribeiro, Rooke, 2010), and seek remedial measures When Should altered. The implementation of basic sanitation is of paramount importance, aiming at Improving the quality of life and health of the population, reducing morbimortality, reducing the transmission existence of diseases and water transportation, among other aspects. It is known que Numerous diseases spread in Developing Countries come from poor quality water, through direct contact or ingestion of contaminated water, lack of treated water or sanitary sewage and insects / vectors developed in water, manifesting the diseases of Flow. The objective of this study was to analyze epidemiological data on notifiable waterborne diseases in the city of Bom Jesus da Serra, State Bahia, by comparing statistical data with other municipalities, stressing the importance of basic sanitation for implantation Of the treated water supply system, since the scarcity of water under favorable conditions of inadequate human use and its use in residences leads to an Increase in diseases.

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INTRODUCTION

Water, characterized as natural resource, it is essential for the survival of all the species on Earth. Constituting ascore component to life, it must meet the minimum specifications required by law, if need be favorable, adequate conditions for human consumption and in sufficient quantity to meet the needs for health protection and to provide economic development (BROOK; Rooke, 2010). To obtain clean water that does not have health risks or rejection when consuming, potability standards cover several parameters required by Decree No. 2,914/2011 for quality assurance, which they should be carried out and should seek remedial measures when altered. These parameters are for determination of total coliform performed to indicate the distribution system integrity of the water supply network, whereas only one sample of total monthly samples may show positive result for a population of less than 20,000 (twenty thousand) inhabitants. These coliform bacteria are considered primary indicators of fecal contamination of water (Pereira, 2004); the count of hetero trophic bacteria should be performed to determine the integrity of the distribution system providing information on the bacteriological quality of water and it is recommended not exceed the limit of 500 CFU / ml (BRAZIL, 2006);already *Escherichia coli* features indicator of faecal contamination and must provide a maximum allowable value (PMV) in 100 mL absence of the sample (BRAZIL, 2011). Other parameters are: the free residual chlorine featuring a pattern that is drinkable health risk a minimum value of 0.2 mg / L and PMV 5 mg / L in the sample; pH (hydrogen potential) water spreads range of acidic or alkaline conditions, with the reference value a strip 6.0 to 9.5 and characterized as important for controlling the disinfection (BRAZIL, 2006); the color may signal aesthetic nature acceptance for consumption but may also be evidence of presence of toxic byproducts of the chlorination, with the PMV 15ul; turbidity analysis will serve to ensure the micro biological quality of water VMP 5.0 UT (BRAZIL, 2011).

The health, social and economic aspects when correlates the water supply system should be considered with sanitation, and of great importance to the implementation of the same, trying cater to improving the quality of life and health of the population, decreased mortality, decrease the existence of transmission of diseases and waterborne, among other aspects.

According to Law No. 11,445 / 2007, Article 3,

> Basic sanitation is considered as a set of services, infrastructure and drinking water supply operating facilities represented by the activities, infrastructure and necessary facilities to the public drinking water supply from the qualification to the building connections and their measuring instruments and other measures (BRAZIL. FEDERAL LEGISLATIVE POWER, 2007).

The Basic Sanitation Program, created in order to serve municipalities with less than 30,000 inhabitants, regarding sanitation, eliminating any condition that could aggravate the health risk or give the appearance of them. Subsequent to this fact, in the face of existing epidemiological data, the program was expanded in terms of performance, having to cover larger populations still writing other issues such as sanitation, collection and disposal of solid waste and household sanitation improvements.

According Clasen *et al.* (2015, p. 6)

> Estimated that 1.1 billion people worldwide have water supply who are at high risk of faecal contamination. In addition, almost half the world's population has no domestic water connections (WHO / UNICEF 2015), and are at higher risk of contaminated water due to contamination during collection, storage and use at home (CLASEN *et al.,* 2015).

It is important note that the poorest communities suffer from a lack of basic sanitation, making frequent and impacting on health in urban areas, where the lack or inadequacy of sanitation leads the transmission of infectious diseases such as diarrhea, by both domains public and domestic (BROOK; Rooke, 2010). The World Health Organization (WHO) says that numerous diseases that spread in developing countries come from poor water quality. The health of the population may suffer due the use of this poor water quality due to direct consumption, food intake, use in personal care and leisure, agriculture and industry. (BROOK; Rooke, 2010). It is estimated that the contaminated water consumption results in 80% of existing diseases and over one third of deaths in developing countries**,** losing an average up to one tenth of productive time each person due to water-related diseases (MORAES; JORDAN, 2002). According Pereira (2004, p. 24), each of the sources of pollution determines certain pollutant level reached in water body, measured by physical-chemical and biological peculiarities of the soil. The growing range of organisms that cause serious health risks, disinfection resistance issues are bacteria, viruses, protozoa and helminths (BRAZIL, 2006). By direct contact or ingestion of contaminated water, lack of clean water or sewage and insect / vectors developed in the water, manifested to waterborne diseases. The existence of diseases in poor areas in Brazil as result of missing or inadequate sanitation system, has worsened the epidemiological situation. The effect of the lack of sanitation on the health of the population is becoming increasingly present, especially in the poorest communities (RIBEIRO; Rooke, 2010). The aim of this study was analyze epidemiological data about the transmission of diseases and waterborne notifiable in the population of the municipality of Bom Jesus da Serra - Bahia, compared to other locations in relation to the benefits of sanitation implementation: water supply treated.

METHODOLOGY

The city of Bom Jesus da Serra is located in the northeast of Brazil, located in the southwestern region of the state of Bahia to 463.7 km from Bahia capital, Salvador. Occupies a total area of 467.813 km^2 (IBGE 2016) with a population of 10,113 inhabitants in 2010 and estimated for 2016 at 10,515 inhabitants. It has the county seat about 1,395 water connections, with a target population of 3,910 inhabitants, and in the town of Asbestos Bomfim, 120 links supplying 372 inhabitants, totaling 4,282 people benefited from improved water supply (EMBASA, 2016). The rest of the population uses water coming from wells, dams and elsewhere brought by tank truck. Presenting as geographic coordinates an altitude of 689 m, latitude South 14º22 'and west longitude 40º30' with climate predominance of semi-arid type, annual average temperature of 23.3 ° C having a rainy season from November to March and an annual rainfall of 582, 9mm (BAHIA, 2012), relief constituted by the levels of the middle Rio Accounts and the ripples of the Massif Central, presenting with pronounced undulations and medium sized variations in elevation, and is inserted in the basin of the Rio de Contas (EMBASA, 1995). For the preparation of this work, we used the quantitative methodology on the health benefits of the population with the establishment of the water supply system. Then held a comparison with other municipalities present in the same micro-region of Health and covering the same catchment area of the Rio de Contas, showing information about waterborne diseases, contrasting the importance of sanitation for the population.

The data were organized in Excel spreadsheet, through procedures of statistical analysis and presented with graphics and tables. To find the seasonality of waterborne disease was calculated the monthly average the period researched making correlation with absolute data of annual cases proportional to the population of each municipality. According to IBGE (2016), the population of each municipality from the period 2007 to 2016 is shown below, as shown in Table 1.

Table 1. Representative of population evolution according Population Count 2007 Population Census 2010 and estimated 2013 population and 2016

Municipalities	2007	2010	2013	2016
Bom Jesus da Serra	11,295	10,113	10,644	10,515
Belo Campo	15,262	16,021	18,539	18,312
Caetanos	12,133	13,639	15,842	16,045
Mirante	9,174	10,507	10,270	9,735

Sour ce: IBGE, 2016.

In order to ratify the benefits and potential harms of water human consumption and by recent records were defined four (04) existing municipalities in Vitória da Conquista micro-region, Bahia, and the city of Bom Jesus da Serra the focus of this research, also involving the municipalities of Belo Campo, Caetanos and Lookout for comparison of information related

to water and its diseases. The choice of these municipalities took place because they were the last to deploy the water supply system treated in the micro. And in the municipality of Bom Jesus da Serra was established in 1999, Belo Campo in 2010 Caetanos in 2011 and in 1997 Lookout (EMBASA, 2017). Using as basic sanitation indicator as water and health disorders indicators of water borne diseases reportable present in the respective municipalities: diarrheal diseases, schistosomiasis, dengue, Chikungunya virus, Zika and viral hepatitis A. In this sense, the comparison was to intended to show the importance of sanitation, scoring data about the disease propagation and water transmission and the importance of implementation of sanitation.

The information on the study were collected through secondary data, public access, with the research sources the Superintendency of Economic and Social Studies of Bahia (SEI) with general information, geographic, demographic and basic services in their municipalities who make up the study; the Brazilian Institute of Geography and Statistics (IBGE) through demographics of the respective municipalities; the Regional Health Nucleus (NRS) - Southwest Bahia, covering municipalities in the micro-region of Vitoria da Conquista through data of the Sanitary and Epidemiological Surveillance, providing information on the health of the population in relation to the water notifiable diseases, morbidity and on the quality of water for human consumption through the Information Systems in Health (DATASUS, SINAN, Suvisa, SIH, SIVEP-Adi, SISAGUA, VIGIAGUA etc.); Secretary Municipal Municipality of Health of Bom Jesus da Serra, as well as epidemiological surveillance coordination and endemic center of the municipality and; A literature articles, journals, theses, books and dissertations to compose a database, improving knowledge concerning the disease and serving waterborne, highlighting the importance of sanitation related to treated water supply.

RESULTS AND DISCUSSION

It was observed based on the collected information, between the periods 2014 to 2016 physical-chemical and microbiological analyzes of water were performed in the respective municipalities under study according to Decree No. 2,914 / 2011. However, other mandatory analyzes not on results. The collections of these samples occurred in several points of distribution of water supply network, each municipality must submit monthly to the water laboratory surveillance of Water Quality for Human Consumption NRS-southwest of Bahia. According the Quality Surveillance Sampling plan of water for the Bahia Human Consumption (BAHIA, 2014), the tables below show the analysis performed in the treated water collected in the supply network points and the results expressed as a percentage (analyzed data and tabulated by the investigator), and the number of samples analyzed and collected in the years 2014 (Table 2), 2015 (Table 3) and 2016 (Table 4) municipalities under study. Stressing that there were shortcomings in the realization of some tests not being carried out analyzes to determine heterotrophic bacteria that, according to paragraph 1 of Art. 27 of Ordinance No. 2914/2011 should be held to these bacteria in 20% (twenty percent) of the monthly samples for total coliform analysis. No municipality that compose the study analyzed the concentration of fluoride ion in any period. As demonstrates the tables 2, 3 and 4, in the respective years were no municipalities with variance between the refers to the total amount monthly and annual samples, as recommended the National Guideline Sampling Plan your spreadsheet minimum sample quantity analyzed by the Quality Surveillance of Human Drinking Water (SISAGUA, 2017), showing that only in 2014 city of Lookout (151.85%) and in 2015 the municipality of Bom Jesus da Serra (102.78%) met the required quantity of samples. The minimum amount established by the guideline varies between the municipalities. Bom Jesus da Serra and Mirante must send monthly nine (09) shows with an annual total of 108 (one hundred and eight) samples and Belo Campo and Caetanos must submit ten (10) monthly samples with a total of 120 (one hundred twenty) samples annually.

At no time was conducting analysis to determine the amount of free residual chlorine in Bom Jesus da Serra, with an analysis of great importance for providing the inactivation of pathogens microorganisms. In Caetanos between the period 2014 to 2016, there was no realization of the fluoridation method, being mandatory treatment for public water supply in order to prevent tooth decay (BRAZIL, 2012, 2014). It is emphasized the neglect both the municipalities that failed to send the number of samples required in the sampling plan for the realization of quality surveillance, as the body responsible for performing all tests required by the law, which characterizes the non compliance current, thus exposing the user population to risk conditions to health. Based on water quality, there is a need to correlate the water analysis and their values presented with disease transmission and water serving mandatory reporting.

It was possible to show a relatively high number of notifications of these types of disease. In SINAN there are several water borne diseases reportable, presented below diseases that have reported cases in the counties studied. Chart 1 confirms a variation between the municipalities as the monthly average, it is possible note that the municipalities of Bom Jesus da Serra, Belo Campo and Caetanos presented oscillations, with a decline from February to June and from July to November with little change for most. However, in the Lookout scenario is different in that the number of cases is more stable throughout the period. The hypothesis would explain such situations would be related to the rainy season, which ranges from November to March in Bom Jesus da Serra and Caetanos and from October to March in Belo Campo and Lookout, and influence the course of rainfall water being dammed in dams, rivers, lakes, ponds, dams and rivers carrying dirt and therefore the use of a water without proper treatment conditions. Graphic 2, it may be noted that in the municipality of Caetanos the past 10 years showed a significant reduction of acute diarrheal diseases. Already Bom Jesus da Serra remained intermittent, with a significant drop in 2011. Mirante there was a steady decline in the last 10 years, with very low values. The municipality of Belo Campo showed significant fluctuations aimed at increasing the number of cases in the last 10 years. Stressing that, for lack of prior information, and only information from 2007, it was not possible to hold an annual comparison of these diseases before implantation of the treated water supply to the cities of Bom Jesus da Serra and Lookout, but it was observed that notifications had different percentage variations when correlated with the total population. For municipalities and Belo Campo e Caetanos can be understood that after implantation of the water supply system was periods with different values for cases of acute diarrhea.

Table 2. Percentage of physical-chemical and microbiological analyzes of water from municipalities according to VIGIAGUA -2014

County	physicochemical and microbiological analyzes of water						
	Percentage of results realized and / or unrealized						
	Coliform bacteria	E. coli	CRL	Turbidity	fluoridation	Color	pH
Bom Jesus da Serra (62 samples)	81.0%(1) 16.0%(2) 3.0%(3)	98.4%(1) 1.6%(3)	100%(3)	95.2%(4) 4.8%(5)	100% Yes	100%(4)	77.4%(4) 22.6%(6)
Caetanos (33 samples)	100%(1)	100%(1)	87.9%(4) 9.1%(6) 3.0%(3)	100%(4)	100%(3)	100%(4)	57.6%(4) 15.1%(6) 27.3%(3)
Belo Campo	data not found in SYSTEM VIGIAGUA						
Lookout (164 samples)	78.0%(1) 13.4%(2) 8.5%(3)	90.85%(1)% 0.61(2) 8.54%(3)	72.56%(4) 26.82%(6) 0.62%(5)	86.0%(4) 14.0%(5)	100% yes	77.4%(4) 22.6%(5)	66.5%(4) 17.0%(6) 16.5%(3)

SOURCE: Information: Surveillance Information System of Water Quality for Human DATASUS consumption. "Data analyzed and tabulated by the researcher." (1) Away (2) Gift (3)not carried out (4) Ideal (5) Above allowed (6) below the permitted

Table 3. Percentage of physicochemical and microbiological analysis of water municipalities according to VIGIAGUA -2015

County	Physico-chemical and microbiological analysis of the water						
	percentage of the results achieved and / or unrealized						
	Coliform bacteria	E.coli	CRL	Turbidity	fluoridation	Color	pH
Bom Jesus da Serra (111 samples)	54.0%(1) 46.0%(2)	97.3%(1) 2.7%(3)	100%(3)	98.2%(4) 1.8%(5)	100% yes	97.3%(4) 2.7%(5)	98.2%(4) 1.8%(6)
Caetanos (44 samples)	93.0%(1) 7.0%(2)	90.9%(1) 2.3%(2) 6.8 %(3)	68.2%(4) 25.0%(6) 6.8%(3)	95.45%(4) 4.54%(5)	100%(3)	97.7%(4) 2.3%(5)	100%(4)
Belo Campo (94 samples)	83.0%(1) 17.0%(2)	95.7%(1) 3.2%(2) 1.1%(3)	69.15%(4) 25.53%(6) 5.32%(3)	96.0%(4) 4 0%(5)	100% yes	96.8%(4) 3.2%(5)	83.0%(4) 17.0%(6)
Lookout (61 samples)	80.3%(1) 13.1%(2) 6.6%(3)	88.5%(1) 6,5 %(2) 5.0%(3)	67.2%(4) 29.5%(6) 3.3%(3)	91.8%(4) 6.6%(5) 1.6%(3)	100% yes	88.52%(4) 9.84%(5) 1.64%(3)	100%(4)

SOURCE: Information: Surveillance Information System of Water Quality for Human DATASUS consumption. "Data analyzed and tabulated by the researcher." (1) Away (2) Gift (3)not carried out (4) Ideal (5) Above allowed (6) below the permitted

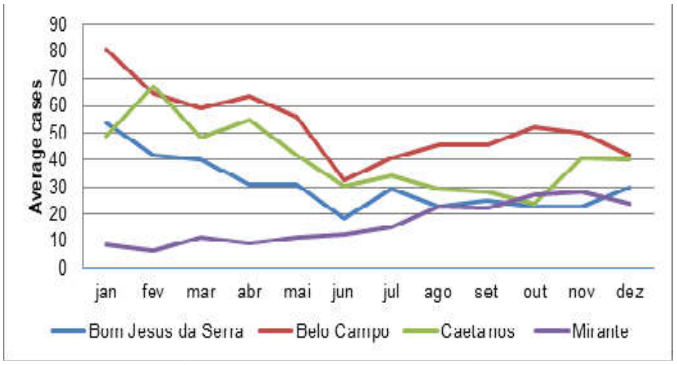
Table 4. Percentage of physicochemical and microbiological analysis of water municipalities according to VIGIAGUA -2016

County	physico-chemical and microbiological analysis of the water						
	percentage of the results achieved and / or unrealized						
	Coliform bacteria	E.coli	CRL	Turbidity	fluoridation	Color	pH
Bom Jesus da Serra (70 samples)	51.4%(1) 42.9%(2) 5.7%(3)	88.6%(1) 11.4%(2)	100%(3)	100%(4)	100% yes	100%(4)	98.6%(4) 1.4%(6)
Caetanos (41 samples)	85.4%(1) 14.6%(2)	100%(1)	70.7%(4) 19.5%(6) 9.8%(3)	100%l	(1004%(3)	90.2%(4) 9.8%(5)	97.6%(4) 2.4%(6)
Belo Campo (19 samples)	58.0%(1) 42.0%(2)	89.4%(1) 5.3%(2) 5.3%(3)	42.1%(4) 57.9%(6)	100%(4)	100% but	94.7%(4) 5.3%(5)	79.0%(4) 21.0%(6)
Lookout (46 samples)	76.1%(1) 15 2%(2) 8.7%(3)	89.13%(1) 4.35%(2) 6.52%(3)	74.0%(4) 26.0%(6)	78.3%(4) 21.7%(5)	100% Yes	46.0%(4) 54.0%(5)	93.5%(4) 6.5%(6)

Source: Information: System of Water Quality Surveillance Information for Consumer Human DATASUS. "Data analyzed and tabulated by the researcher." (1) Away (2) Gift (3)not carried out (4) Ideal (5) Above allowed (6) below the permitted

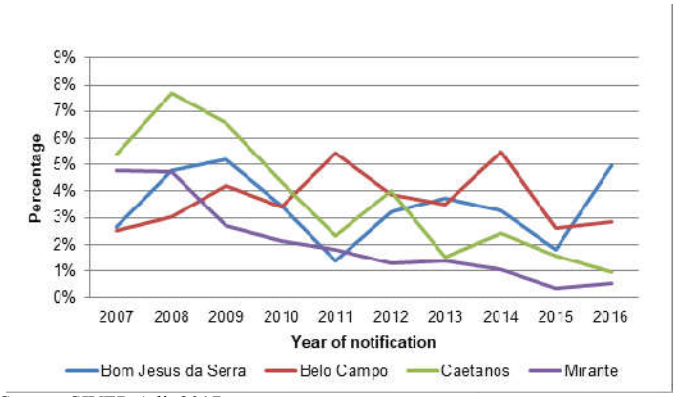
In Belo Campo, as regards the number of reported cases of acute diarrheal disease, can observe an increase the number of cases after implantation, hypothetically suggesting that during the water treatment there is some failure. In later Caetanos the year of implementation, the number of reported cases presented smaller, suggesting that the treatment is being effective as regards the quality of drinking water, improving the health of the population regarding acute diarrheal diseases. It also suggests, both the values is compared to the monthly average, as for the annual percentage, issues related to drought and water rationing, since it is known that when this kind of situation, the population seeks supply alternatives, can make use of water of unknown origin and its quality. However this data is not 100% reliable because it is situations that, as they are notified the case, the responsible department does not fill correctly the plug of diseases of enteric diseases, neglecting the place of residence and the search for the cause Elementary for this disease, since its origin is either by drinking contaminated water or by eating contaminated food contaminated water, which indirectly second alternative is related to the water quality. Graphic 3 shows the second disease belonging the triad of arboviruses, which had more cases reported between the years 2007 and 2016. As this is a waterborne disease, it is evident an increase the number of cases in 2009 in Bom Jesus da Serra (202 cases) in Caetanos (97 cases) and Mirador (354 reported cases), but in 2012 and 2013 respectively, Caetanos presented with 83 and 90 cases. However, the most alarming fact occurred in 2012 in Belo field with 577 reported cases, with further 95 cases reported in 2016. The most likely hypothesis for this result would be that, in the years 2009 and 2013 show an increase in the number cases of dengue because it is a period with major epidemics in recent Bahia (BAHIA, 2016). The year 2012 was characterized as the year of the last most severe drought 50 years in the

Northeast, according Miranda (2012, p. 46)" The drought in Bahia", reporting and highlighting of drought relief strategies, in which the probable explanation for the occurrence of this fact has been storing water in containers without lids, allowing the growth of the transmitting agent, relevant factor to present high levels of dengue cases. With regard to the Chikungunya fever, you can notice in graphic 4 that there was only the notification of cases in the year 2016, and 01 (one) case in the municipality of Caetanos and three (03) cases in Bom Jesus da Serra. It is important emphasize this disease, because even if the number of cases is relatively low compared to others, the costs to the public health service are high with regard to the treatment of this disease.



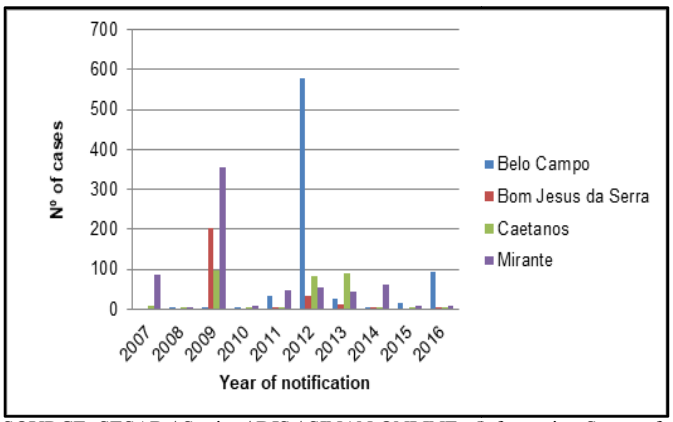
SOURCE: SIVEP-Adi, 2017.

Graphic 1. Average monthly number of cases of acute diarrheal diseases reported between 2007 and 2016



Source: SIVEP-Adi, 2017.

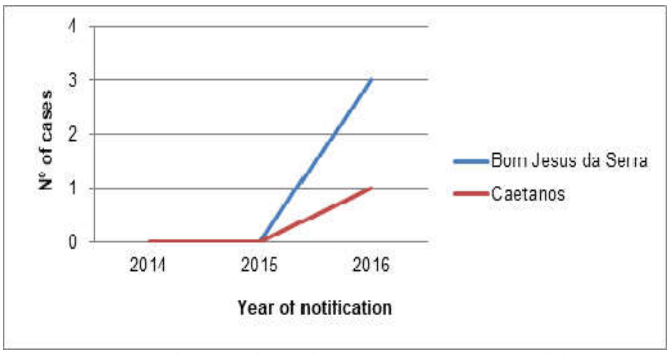
Graphic 2. Annual percentage of cases of acute diarrheal diseases reported per 100 inhabitants in the period from 2007 to 2016



SOURCE: SESAB / Suvisa / DIS / SINAN ONLINE - Information System for Notifiable Diseases, 2017.

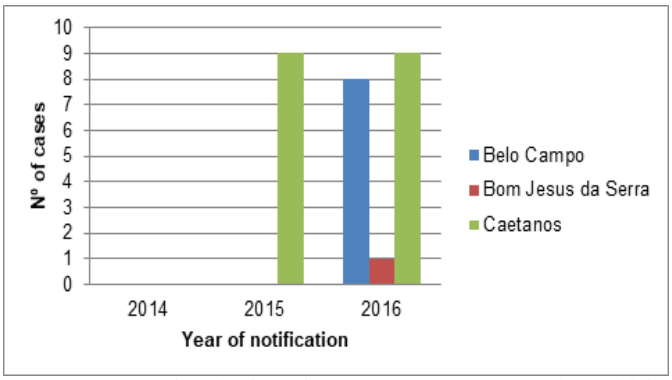
Graphic 3. Cases reported suspected / confirmed Dengue place of residence between 2007 and 2016

In graphic 5, there are case reports in 2015 and 2016 in Caetanos with same number of cases and in 2016 in Belo field with eight suspected cases / reported. It is important note that notifications for arboviruses Chikungunya fever and virus Zika began from 2014. Being diseases with little study and present a few cases as shown in the graphs 4 and 5, does not minimize the consequences of these diseases becoming devastating, resulting in huge costs to public health. For both as to Chikungunya virus Zika, comprising the period of 2015-2016, shows an increase in the number of cases for the state of Bahia according to Sesab (2016).



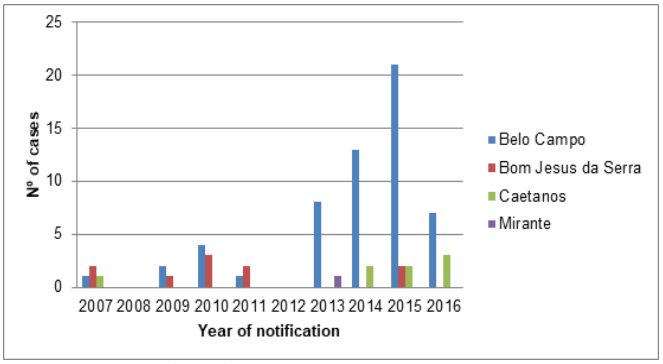
SOURCE: SESAB / Suvisa / DIS / ONLINE SINAN - Notifiable Diseases Information System, 2017.

Graphic 4. Reported cases suspected / confirmed Chikungunya fever by place of residence 2014-2016



SOURCE: SESAB / Suvisa / DIS / SINAN ONLINE - System for Notifiable Diseases Information, 2017.

Graphic 5. Cases reported suspected / confirmed acute disease by Zika virus residence in the years 2014-2016

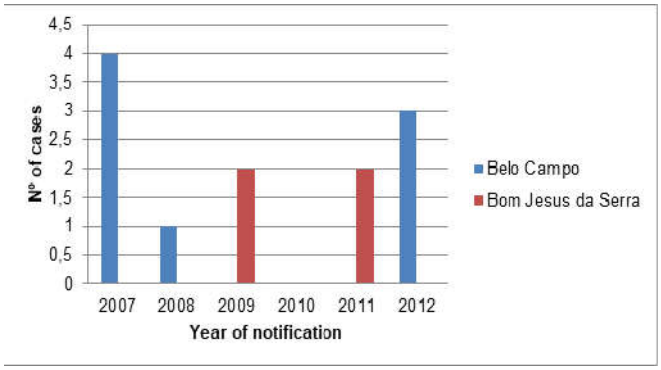


SOURCE: SESAB / DIS / SINAN, 2017.

Graphic 6. Cases of Schistosomiasis by residence in the 2007-2016 period

And because it was a dry period and with water scarcity and rationing, with the possible hypothesis the need for water storage in containers without adequate security, increasing the

spread of vector mosquito larvae for these diseases, which is the same as dengue, coinciding with the situation presented.
Because it is an endemic disease in broad national territory and be directly related to places where there is no sanitation or has inadequate sanitation and even the municipalities under study do not fit in the endemic area this disease, according Carvalho *et al*. (2008), were found in these municipalities molluscs of the species *Biomphalaria glabrata* and *Biomphalaria straminea* intermediate hosts of *Schistosoma mansoni,* becoming something concern for public health. Chart 6 shows a case reports of an increasing trend, with three major peaks in 2013 (8 cases), in 2014 (13 reported cases) and 2015 (21 cases reported), all in the municipality of Belo Campo. Already Bom Jesus da Serra there were variations between 2007 and 2011 with notifications 1-3 cases and two cases in 2015.



Source: Sesab / Dis / Sinan, 2017

Graphic 7. Reported cases and confirmed viral hepatitis A transmission mechanism as the food / water bymunicipality of residence between 2007-2012

In Caetanos there was an increasing trend in 2016 with three reported cases. Because it is a transmission of disease through contact of skin / mucous membranes with contaminated water, or presence of the parasite *S. mansoni* as result of elimination of human desires, the hypothesis for this fact is based on the contact of the population with sites that have proven the existence shellfish species, as cited Carvalho *et al*. (2008) (CARVALHO, 2008). The hepatitis A, is one of five types of hepatitis, in which the transmission is by the fecal-oral route, pointing out that people who have had hepatitis A become immune to this type of injury, but still susceptible to other hepatitis. For the study, it is of relevance only transmission through contaminated water. Given the above, it can be seen in Figure 7 showed that the municipalities in many cases periods, is characterized as new case, or are reports of different people. Presenting cases only in the cities of Bom Jesus da Serra and Campo Belo, with oscillations over the years 2007, 2008 and 2012 in Campo Belo and same number of cases in Bom Jesus da Serra in the years 2009 and 2011. The probable hypothesis for this is due to the fact that water analyzes show presence for E. coli as primary indicators of fecal contamination of water are considered (BRAZIL, 2011).

Conclusion

Conclude that, in Bom Jesus da Serra presented reports for all water borne diseases highlighted in the study, and that the respective counties compared were equivalent with respect to notifications, showing that the water does not have the appropriate treatment as required current legislation, since the local health bodies are not committed to improving the population's quality of life. Noting the need for public policies to enable appropriate professional for that function enforcing the legislation, seeking achieve population to guidance on the importance of treating water for human consumption, educating them that they can carry out treatment and monitoring of quality water as well as the organs responsible for processing and quality surveillance, have a differentiated monitoring during rainy periods, not helping perform the analysis, if the competent bodies act efficiently in order to correct non-conformities found.

REFERENCES

BAHIA. Estatísticas dos Municípios Baianos. [s.l: s.n.]. v. 4

BAHIA. Plano de amostragem de Viligância da Qualidade da água para consumo humano - Bahia - 2014. 2014.

BAHIA. Situação epidemiológica das arboviroses. Bahia, 2016. p. 1–3, 2016.

BRASIL, F. N. DE S. Manual de cloração de água em pequenas comunidades. p. 36, 2014.

BRASIL, M. DA S. Portaria 2914/2011. Diário Oficial da União, v. 2011, p. 1–16, 2011.

BRASIL. Manual de fluoretação da água para consumo humano. p. 72, 2012.

BRASIL. Manual de procedimentos de Vigilância em Saúde Ambiental relacionada à qualidade da água para consumo humano. [s.l: s.n.].

BRASIL. PODER LEGISLATIVO FEDERAL. Lei nº 11.445 de 05/01/2007/ PL. Disponível em: <http://www.diariodasleis.com.br/busca/exibelink.php?numlink=1-98-24-2007-01-05-11445>. Acesso em: 17 ago. 2016.

CARVALHO, *ET AL*. Parte II - Hospedeiros intermediários: distribuição espacial de Biomphalaria glabrata, B. straminea e B. tenagophila, Hospedeiros intermediários de Schistosoma mansoni no Brasil. [s.l: s.n.].

CLASEN, T. F. . *et al*. Interventions to improve water quality for preventing diarrhoea (Review). Cochrane Database of Systematic Reviews, n. 10, 2015.

Cumprimento da diretriz Nacional do plano de Amostragem: parâmetros básicos. Segundo dados obtidos no Sistema de Informação de Vigilância da Qualidade da Água para Consumo Humano (SISÁGUA), 2017.

IBGE. Cidades: Bahia. [s.l: s.n.]. Disponível em: <http://cidades.ibge.gov.br/xtras/uf.php?lang=&coduf=29&search=bahia>. Acesso em: 10 maio. 2017.

MIRANDA, L. A seca na Bahia. p. 38–49, 2012.

MORAES, D. S. D. L.; JORDÃO, B. Q. Degradação de recursos hídricos e seus efeitos sobre a saúde humana. Revista de Saúde Pública, v. 36, n. 3, p. 370–374, 2002.

Número de casos de Doença Diarreica Aguda por município: segundo Semana Epidemiológica, BA, 2017. Segundo dados obtidos no Sistema Informatizado de Vigilância Epidemiológica de Doenças Diarreicas Agudas (SIVEP – DDA), 2017.

PEREIRA, R. DA S. Identificação e Caracterização das Fontes de Poluição em Sistemas Hídricos. Revista Eletrônica de Recusos Hídricos, v. 1, p. 20–36, 2004.

Projeto executivo do sistema de abastecimento de água de Bom Jesus da Serra: relatório técnico preliminar. Segundo dados obtidos na Empresa Baiana de Águas e Saneamento (EMBASA), 1995.

Relatório de vigilância: amostras analisadas. Segundo dados obtidos no Sistema de Informação de Vigilância da Qualidade da Água para Consumo Humano (SISÁGUA), 2017.

RIBEIRO, J. W.; ROOKE, J. M. S. Saneamento Básico e Sua Relação Com o Meio Ambiente e a Saúde PúblicaJuiz de Fora, 2010. Disponível em: http://www.ufjf.br/ analiseambiental/files/2009/11/TCC-Saneamentoe Saúde.pdf

Roteiro de Caracterização do Empreendimento (RCE) – SSA Bom Jesus da Serra. Segundo dados obtidos na Empresa Baiana de Águas e Saneamento (EMBASA), 2016.

Segundo dados obtidos na Empresa Baiana de Águas e Saneamento (EMBASA), 2017.

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