23 - RELATION ENVIRONMENTAL, CULTURAL / SOCIAL, AND HAZARDS OF DISSEMINATION OF AEDES AEGYPTI, VECTOR OF TRANSMISSION OF DENGUE AND POTENTIAL RISKS TO THE FEVER CHINKUNGUNYA, EPIDEMIOLOGICAL ANALYSIS OF THE CITY OF TAMBOARA-PR

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I. INTRODUCTION

The increasing cases of Dengue in all regions of Brazil and with higher incidence in regions with climates more conducive to the development of the vector made today dengue and emerging as a major public health problem, with the spread of serotypes by displacing infected people traveling more frequently encountered due to ease today, with the introduction facilitating epidemics of serotypes that were not previously present in certain cities or geographic regions.

According to the alert TAUIL (2002), cited by Oliveira (2012), it is virtually impossible to prevent the entry of infected persons, being transmissible disease in areas with the presence of the vector, and the current means of transport can move individuals carriers of the virus to distant sites quickly.

With the introduction in Brazil of another etiologic agent of transmission by vectors Aedes aegypti and Aedes albopictus, the virus that causes fever Chinkungunya, concern about the proliferation of these vectors becomes a concern and risk for epidemics of diseases that can be controlled with vector control through cultural change and environmental control actions of the garbage and cleaning the homes of the urban areas of towns and cities.

The Ministry of Health registered until the day October 25, 2014, 828 cases of Chikungunya fever in Brazil, with 155 confirmed by laboratory criteria and 673 by clinical and epidemiological criteria. Of the total, 39 are imported from people who have traveled to countries with disease transmission, such as the Dominican Republic, Haiti, Venezuela, the Caribbean Islands and French Guiana cases. The other 789 were diagnosed in people with no record of international travel to countries where transmission occurs. These cases, called autochthonous, 330 were registered in the city of Oiapoque (AP), 371 in Feira de Santana (BA), 82 Riachão Jacuípe (BA), two in Salvador (BA), one in Alagoinhas (BA) one in Waterfall (BA), one on Amélia Rodrigues / BA and one in Matozinhos (MG).

Dengue fever is a re-emerging infection that is worrying health authorities around the world because of their outstanding on five continents and great potential to cause severe and lethal forms. (TEIXEIRA, 2001)

Besides epidemiological concern with Dengue, concern arises with the circulation of the virus Chikungunya Fever in Brazil. According to the Ministry of Health who claim that the cause of Chikungunya fever, virus is worrying the severity of the condition and the transmission is the same vector Aedes aegypti and Aedes albopictus the present in Brazil. (Brazil, MS 2014)

The Chikungunya fever is a disease caused by the genus Alphavirus virus, transmitted by mosquitoes of the genus Aedes, Aedes aegypti being the (dengue carrier) and Aedes albopictus the main vectors. Disease symptoms include high fever, muscle and joint pain, rash, headache, and usually last from three to 10 days. The lethality of Chikungunya, according to the Pan American Health Organization (PAHO), is rare, and even less frequent than in dengue cases. To avoid the transmission of viruses, it is essential that people reinforce the actions of elimination of mosquito breeding sites. The steps are exactly the same for the prevention of dengue. According to the WHO, since 2004, the virus had been identified in 19 countries. However, from the end of 2013, was recorded autochthonous transmission (within the same area) in several Caribbean countries In March 2014, the Dominican Republic and Haiti, and, so far, only Africa and Asia had the virus circulation.

According to the statements of Morales (2011), dengue fever is a major public health diseases affected by different factors. Among these, there is evidence that climate variability influences the incidence of the disease, affecting the population dynamics of vectors and intrinsic period of virus growth. The variability of the local climate is affected in turn by macroclimatic elements.

The vector control of dengue transmission becomes more difficult as the mosquito adapts the climatic and environmental characteristics of the urban area, making it difficult to control. Teixeira (2001), states that in many countries the actions to combat Aedes aegypti have shown limited effectiveness due to the complexity of the biology of this vector and its ability to adapt to the human environment, as well as technical and operational difficulties in implementing activities to infestation levels achieved compatible with the elimination of transmission, which should be zero or very near zero.

Technologies exist for controlling and monitoring the spread of the disease and its epidemiological behavior, and can identify today the geographic areas with the highest incidence, although the measures are still more control oriented attitudes related to environmental factors and urban habits, lack a control of urban waste. In this context says Arbutus (2006), there is the availability of technology for layering vector of dengue transmission:

Currently available technologies is to stratify the counties according to risk areas, with the definition of specific indicators (entomological, epidemiological and socio-environmental) to improve the stock. Thus, the use of geographic information systems can constitute a powerful resource to support prevention and control of dengue. So far, the only controllable element of the epidemiology of dengue is your vector. In this sense, it is necessary to invest in research for more detailed study of the behavior of Aedes aegypti. Knowledge productivity of various types of breeding sites in urban and environmental conditions and the presence and dynamics of dengue virus in mosquitoes are of great importance for understanding the dynamics of disease transmission.

Based on the epidemiological indices, incidence and population data records of the municipality of research Tamboara-Pr, which served as the basis for the investigation of environmental and cultural factors that can serve the population risk for the development of breeding mosquitoes of the genus Aedes , transmission vectors of Dengue Fever and Chinkungunya.

The data collected in the county were analyzed and measured in degrees of proliferation risks of vectors in homes and urban areas, being collected by the staff of the Family Health Strategy and Control of Endemic Diseases sector of municipal health department.

II- METHODOLOGY

For the design of the research field are leveraged geographical division microareas Program of Family Health Strategy of the municipality, where there are a division into 10 micro areas, in each of microareas a community health agent who

had conducted fieldwork in your work space.

Form created specifically for this research, where the points were analyzed for potential breeding mosquitoes of the genus Aeds aegypti and albopictus, and the identification of residences in three degrees of risk for the development of areas of attention, divided into low risk was used, medium risk and serious risk. The survey was developed with the municipality visits the homes and observed objects and locations likely to develop breeding, presence of debris and garbage in the home, and the level of knowledge of the owner of the dengue disease and the relationship with the cleaning of your residence, with the increase of dengue cases in the city.

After investigation and analysis of the residential data will be consolidated microarea and identifying areas of greatest risk and made the relationship with the incidence of cases in the last two years, and conducted epidemiological analysis and mapping of regions of greatest epidemiological risk. References to defined risk assessment were:

Risk -Grau I = LOW (easy to solve) collaborative resident

-Grau Risk II - GRAVE (debris, fossa without screen foci) not resident collaborative

-Grau Risk III HIGH RISK (Very rubble, Presence scorpion, snail, foci / larvae, etc ...) not resident collaborative

SAMPLE

The sample comprised 1450 households in the municipality of Tamboara-Pr, corresponding to 72.5% of the urban area properties.

III- DENGUE AND ENVIRONMENTAL RELATIONSHIP IN CITIES OF NORTHWEST REGION

Actions to combat epidemics and the significant increase in cases of dengue is linked to environmental factors related to diverse areas of expertise, this process involving the health, environment, governmental actions and especially the change of attitude of the general population in their habits control of urban waste.

In conceptions of Suarez (2011), the prevention of an epidemic of dengue goes beyond the health sector, to highlight the importance of managing this supply drinking water, proper storage and disposal of liquid and solid waste.

This vector has a preference for artificial breeding in household and outdoor areas, proliferating in water accumulated in containers of any kind. Lagrotta and colleagues (2008) reported that industrial products can contribute to the spread and vector density in the human environment, since the arrangement of those artifacts in the environment, without any concern for the proper treatment, increases the volume of waste and promotes the establishment populations of pests. They also claim that the breeding sites such as water tanks and barrels, assume greater importance for the maintenance of high densities of the vector of the disease. These breeding sites result from the lack of structure of buildings and the inappropriate storage of water because, due to irregularities in supply, the population wastebasket water in inappropriate containers, creating condiçcondições receptivity to the proliferation of vectors. (Flauzino, 2011)

Yet in describing Flauzino (2011), about the process of urbanization, citing Forattini (1992) and Lines (1994) authors, urban growth has led to the concentration of individuals susceptible to contamination and infected in restricted areas. This fact, coupled with poor sanitation conditions, inadequate housing, and cultural and educational factors provide ecological conditions favor transmission of dengue viruses by Aedes aegypti, which is perfectly adapted to this environment, through the clearance process.

Adaptation of Aedes aegypti, the northwest region of the state, was an environmental factor associated cultural issues and the lack of care with the attitudes of urban garbage, led epidemics experienced by municipalities in the region in the years 2013 and 2014, with introduction of serotype "I and IV" in this region.

The incidence in the State is 59.98 cases per 100,000 inhabitants. (6596 / 10.997.462hab.), Considered low (less than 100 cases / 100,000 inhab.) By the Ministry of Health, according to table 01.

The general state data in the assessment of the health ministry considers an overall incidence of the condition, but when the data are concentrated in the northwest region of the state, specifically in the municipality of Tamboara-Pr, the object of this study showed a rate of 926.6 / 100,000, reaching the risk parameters of the ministry of health.

3.1 Overview of Risk and climatological data for Aedes aegypti and albopictus

The climatological relationship, is a technology for effective monitoring for tracking indices and analysis of rainfall for climatological regions, favoring a risk estimate by region.

Climatological data indicate the regions most at risk for increased dengue cases by region, being the northwest region of the state of Paraná region with high climatic risk. The data are supplied by the laboratory of climatology UFPR, which states that the system can identify the formation of atmospheric conditions favorable to reproduction and activity of Aedes aegypti - vector of dengue in the state. The analysis of meteorological data allows us to draw daily climate profile of different regions of Paraná in regard to the formation of more or less favorable to mosquito infestation and thus to greater or lesser incidence of cases of the disease environments.

One should be especially careful when environmental factors that favor the spread of the dengue vector, increasing periods of rain, leading to an increasing proportion of the local accumulation of water in the environment and when you do not have an environmental control debris, and locations that can serve as breeding grounds, these rainy season are a risk for the development of an epidemic.

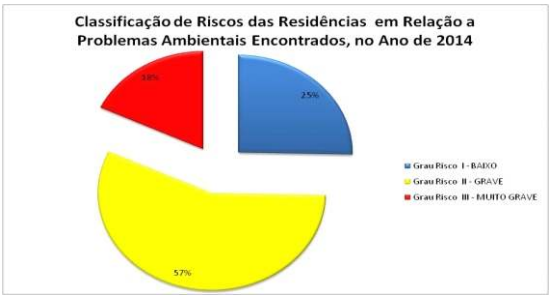
Regarding northwest region of the state, the object of this study there is a high risk region, still having a big-related displacement of people from the municipality concerned, and the municipality from Paraná, with larger populations in the region, with large flow people between the municipality and the smaller geographically located around you.

Of the 18 meteorological stations evaluated regarding the favorable climatic conditions of the reproductive and developmental foci (breeding) and dispersal of the mosquito Aedes aegypti, eight had high risk, medium risk eight. The State Department of Health of Paraná (SESA), warns that preventive measures be stepped up to avoid critical situations, because the period is presented at high risk for the occurrence of cases.

IV ANALYSIS AND DISCUSSION OF RESULTS

Regarding factors related to environmental issues, based on the criteria defined in this work where the residences were evaluated by teams of the Family Health Strategy, based on the degree of risks, identified that 57% of households had "Risk Level II-Record "18% and" risk Level III- Very severe "considering the aggravating factors of these two criteria where one can identify 75% of homes that had environmental risk factors for the development of vectors albopictus and Aedes aegypti, with only 25% of households with "Degree of Risk Low Risk I-".

Graph I - Classification of homes according to the degree of risk vectors albopictus and Aedes aegypti.



Source: Municipal Health / PSF / Control of Endemic Diseases Tamboara-Pr

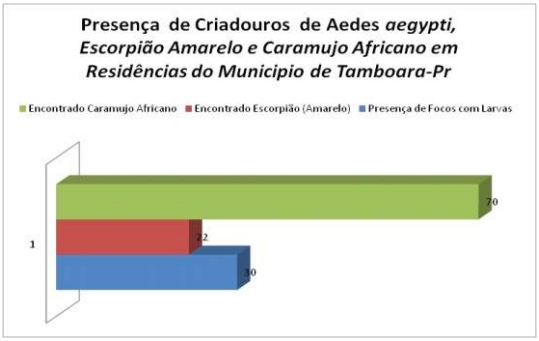
In the analysis of the fieldwork was observed related to certain risk factors aggravating environmental problems where found: "no tanks screened" 60 homes 4%, showed a lack of screen protection and 100 homes had "inadequate trenches" representing 8.3%. Pits found represent an environmental risk due to being an environment conducive to developing probable foci of breeding and where they may lodge arthropods such as scorpions and African snail site.

35 homes with open "water tanks", which is a source of proliferation for the vectors being found foci of Aedes aegypti, 2 two of the assessed water tanks were found, still representing a high risk for focus breeding large amount of greater quantity of water and larvae.

Regarding the presence of "garbage in front of the yard", 180 homes had the problem, representing 12%, with another aggravating factor related to the presence of garbage, where 600 homes 40%, had the presence of debris in the yard, where it is observed the presence of trash and garbage are an indication of gravity for the presence of arthropods and foci that can become breeding grounds for the vector.

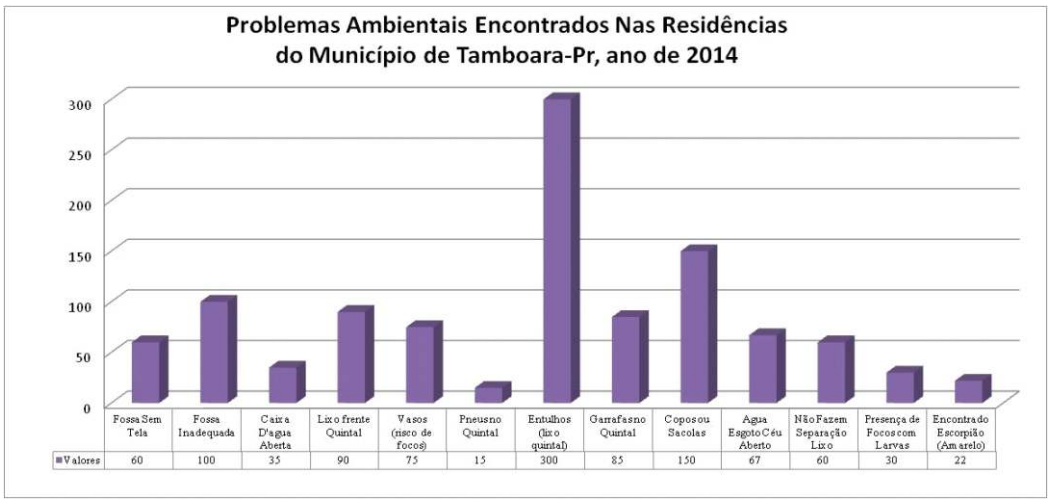
Of the 1450 homes inspected by the team of endemic and community health workers, 70 houses were found with the presence of African snails, 22 residences where arthropods (yellow scorpion "Tityus serrulatus") were found, and 30 spots with the presence of larvae of aedes aegypti. The presence of arthropods, snails and larvae foci, are a risk factor, mainly related to the large amount of trash and debris and places like tanks without lids in homes and the characteristics of displacement of the yellow scorpions increase the risks of accidents with these arthropods, even in homes that are appropriate and close to the houses with the presence of local risk. (Chart 2)

Graph 2 - Presence of foci with larvae, and Yellow Scorpion African land snail in the visited households.



Source: Municipal Health / PSF / Control of Endemic Diseases Tamboara-Pr

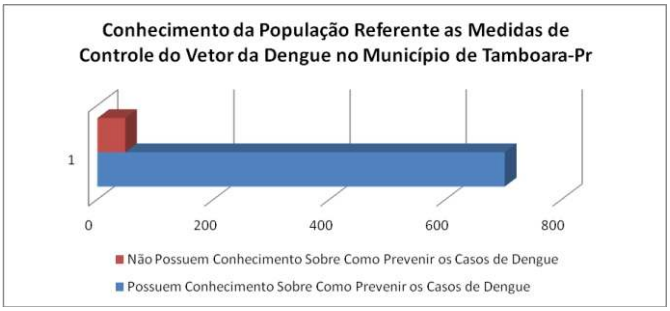
Graph 3- Environmental Problems Found in the City of Tamboara-Pr.



Source: Municipal Health / PSF / Control of Endemic Diseases Tamboara-Pr

Related to the population's knowledge about knowledge regarding the modes of transmission of Dengue and the characteristics of the mosquito of the genus Aedes, it was observed that 90% of the population interviewed had knowledge of the pathology, the vector and the mode of transmission, with only 10% who had no knowledge. An aggravating observed fact is that despite knowing the pathology and declare the modes of transmission, the data collected showed that not practice measures to combat and eliminate vector breeding sites, getting control actions in your broadcast most public entities .

Chart 4 - Population Level Knowledge About Dengue Vector Control



CONCLUSION

After studying the epidemiological situation experienced by the municipality subject of this study, there is a serious cultural problem and poor habits of cleanliness control and disposal of solid waste.

The lack of control actions of the population in your home brings a growing concern with the vector control of dengue and the same risk in the event of introduction of Chinkungunya virus, transmitted by the same vector genre "Aedes".

These findings shed an alarming concern about the spread of the vector in the county and geographical region to which it belongs, because the environmental conditions control of solid wastes from residences, and associated climatological characteristics of the northwestern region of Paraná state, associated with the proximity of municipalities and the displacement of the population favor the multiplication and spread of the Aedes aegypti mosquito, which transmits dengue virus and Chinkungunya.

Dengue epidemics experienced in the county in the years 2013 and the first half of 2014, show that the increase in mosquitoes and ease of proliferation related to the presence of local accumulation of water becomes a breeding potential.

Currently the best measure to control Dengue and the risk of introduction of Foot Chinkungunya is environmental control vector transmission, which requires measures together government bodies, general public and the systematic control of urban waste, breeding and change in profile epidemiological population. It is observed that the actions should be undertaken collectively, which the attitudes of control must be comprehensive and aimed at controlling the vectors of the genus Aedes.

The effective participation of the population is the primary factor for the control of mosquitoes of the genus "Aedes", with control measures of urban waste, and that awareness to prevent new epidemics, governmental action must be undertaken with the active participation of the population, and severe environmental control of mosquitoes transmitting Aedes aegypti and Aedes albopictus.

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RELATION ENVIRONMENTAL, CULTURAL / SOCIAL, AND HAZARDS OF DISSEMINATION OF AEDES AEGYPTI, VECTOR OF TRANSMISSION OF DENGUE AND POTENTIAL RISKS TO THE FEVER CHINKUNGUNYA, EPIDEMIOLOGICAL ANALYSIS OF THE CITY OF TAMBOARA-PR

ABSTRACT

The growing epidemics of dengue in Brazil and in the state of Parana where the Northwest region showed a high incidence in the years 2013/2014 and the appearance of the first cases of fever Chinkungunya transmitted by the same vector, in northern Brazil warn measures preventive and scientific and epidemiological studies. The aim of this study is to evaluate cases of dengue in the northwest of the state of Paraná, and relate to environmental, cultural and social factors in a small city. The methodology used was through household survey which was used to search form prescribed by the Family Health Program and

Endemic Disease Control of the municipality of Tamboara team-Pr, 1450 households were assessed representing 72.5% of the urban area, having identified outbreaks of probable breeding grounds for the vector of dengue and the risk of spread of the mosquito Aedes aegypti and albopictus, and geographic regions identified in three degrees of risk. We conclude from this study that environmental factors and the behavior of the population, associated with climatic factors in the northwestern region of Paraná state, contributed to the growing epidemics suffered, and that the work of vector control measures required in partnership of entities government managers, but mainly in the changing habits of the general population.

KEYWORDS: Environmental Factors, Analysis, Epidemic

CONCERNANT ENVIRONNEMENTAL, CULTUREL / SOCIAL ET DANGERS DE DIFFUSION DE L'AEDES AEGYPTI, VECTEUR DE TRANSMISSION DE LA DENGUE ET LES RISQUES POTENTIELS À LA FIÈVRE CHINKUNGUNYA, ÉPIDÉMIOLOGIQUES ANALYSE DU VILLE DE TAMBOARA-PR

RÉSUMÉ

Les épidémies croissantes de dengue au Brésil et dans l'état de Parana où la région du Nord-Ouest a montré une incidence élevée dans les années 2013/2014 et l'apparition des premiers cas de fièvre Chinkungunya transmises par le même vecteur, dans le nord du Brésil mettent en garde contre des mesures études de prévention et de scientifiques et épidémiologiques. Le but de cette étude est d'évaluer les cas de dengue dans le nord-ouest de l'État du Paraná, et se rapportent à des facteurs environnementaux, sociaux et culturels dans une petite ville. La méthodologie utilisée est par enquête auprès des ménages qui a été utilisé pour la forme prescrite par le Programme de santé familiale et Lutte Contre les Endémies de la municipalité de Tamboara équipe-Pr recherche, 1450 ménages ont été évalués représentant 72,5% de la zone urbaine, après avoir identifié épidémies de lieux de reproduction probables pour le vecteur de la dengue et le risque de propagation du moustique Aedes aegypti et albopictus, et régions géographiques identifiées dans trois degrés de risque. Nous concluons de cette étude que les facteurs environnementaux et le comportement de la population, associée à des facteurs climatiques dans la région nord-ouest de l'État du Paraná, a contribué à l'épidémie croissante souffert, et que le travail des mesures de lutte antivectorielle requis en partenariat des entités les gestionnaires du gouvernement, mais surtout dans l'évolution des habitudes de la population en général.

MOTS-CLÉS: Facteurs environnementaux, analyse, Épidémie

RESPECTO AMBIENTAL, CULTURAL / SOCIAL Y PELIGROS DE DIFUSIÓN DE AEDES AEGYPTI, VECTOR DE LA TRANSMISIÓN DEL DENGUE Y LOS RIESGOS POTENCIALES A LA FIEBRE CHINKUNGUNYA, EPIDEMIOLÓGICA ANÁLISIS DEL CIUDADE DE TAMBOARA-PR

RESUMEN

Las crecientes epidemias de dengue en Brasil y en el estado de Paraná, donde la región Noroeste mostró una alta incidencia en los años 2013/2014 y la aparición de los primeros casos de fiebre Chinkungunya transmitidos por el mismo vector, en el norte de Brasil advierten medidas estudios preventivos y científicos y epidemiológicos. El objetivo de este estudio es evaluar los casos de dengue en el noroeste del estado de Paraná, y se refieren a los factores ambientales, culturales y sociales en una ciudad pequeña. La metodología utilizada fue a través de la encuesta de hogares que se utilizó para la forma prescrita por el Programa de Salud Familiar y Control de Enfermedades Endémicas del municipio de Tamboara equipo-Pr buscar, 1.450 hogares fueron evaluados que representa el 72,5% de la zona urbana, después de haber identificado brotes de criaderos probables para el vector del dengue y el riesgo de propagación del mosquito Aedes aegypti y albopictus, y regiones geográficas identificadas en tres grados de riesgo. Llegamos a la conclusión de este estudio que los factores ambientales y el comportamiento de la población, asociada a factores climáticos en la región noroeste del estado de Paraná, contribuimos a las epidemias crecientes sufrido, y que el trabajo de las medidas de control de vectores se requiere en colaboración de entidades los administradores del gobierno, pero sobre todo en los cambios de los hábitos de la población en general.

PALABRAS CLAVE: Factores Ambientales, Análisis, Epidemia

RELAÇÃO AMBIENTAL, CULTURAL/SOCIAL, E RISCOS POTENCIAIS DE DISSEMINAÇÃO DO AEDES AEGYPTI, VETOR DE TRANSMISSÃO DA DENGUE E RISCOS POTENCIAIS PARA A FEBRE CHINKUNGUNYA, ANÁLISE EPIDEMIOLÓGICA DO MUNICÍPIO DE TAMBOARA-PR

RESUMO

As crescentes epidemias de dengue no Brasil e no estado do Paraná onde a região noroeste do estado apresentou uma incidência alta nos anos de 2013/2014 e o surgimento dos primeiros casos de Febre Chinkungunya transmitida pelo mesmo vetor, na região norte do Brasil alertam para medidas preventivas e estudos científicos e epidemiológicos. O objetivo deste estudo é avaliar os casos de dengue na região noroeste do estado do Paraná, e relacionar com fatores ambientais, culturais e sociais em um município de pequeno porte. A metodologia utilizada foi através de pesquisa residencial onde se utilizou formulário de pesquisa elaborado pela equipe do Programa de Saúde da Família e Controle de Endemias do município de Tamboara-Pr, foram avaliadas 1450 residências representando 72,5% da área urbana, tendo identificados os prováveis focos de criadouros para o vetor da dengue e os riscos de disseminação do mosquito Aedes aegypti e Albopictus, e identificadas as regiões geográficas em três graus de risco. Conclui-se com este estudo que os fatores ambientais e o comportamento da população, associados aos fatores naturais climáticos da região noroeste do estado do Paraná, contribuíram para as crescentes epidemias sofridas, e que o trabalho de combate ao vetor requer medidas em parceria de entidades governamentais, gestores, mas principalmente na mudança de hábitos da população em geral.

PALAVRAS-CHAVE: Fatores Ambientais, Análise, Epidemia