Epidemiological surveillance of Dengue: preventive education for the deaf through action research

FREITAS, Heldimar Soares de [1]

VIEIRA, Silvio Santiago [2]

OLIVEIRA, Euzébio de [3]

FREITAS, Heldimar Soares de; VIEIRA, Silvio Santiago; OLIVEIRA, Euzébio. Epidemiological surveillance of Dengue: preventive education for the deaf through action research Magazine Multidisciplinary Scientific Knowledge Center, Year 1, vol. 4, pp. 60-74 - July 2016 - ISSN:0959-2448

SUMMARY

Dengue fever is a disease caused by the mosquito Aedes aegypti, which affects society and constitutes a serious public health problem in Brazil and in the world. This article seeks to understand the person with hearing loss on the need-to-know dengue in Brazilian Language of Signs (Libras) in the municipality of Marituba, located in the metropolitan region of Belém, Pará-Brazil. In order to raise awareness of the importance of the theme proposed for the deaf, through lecture aware the same with subject translated/interpreted and also interpreted in a source language to a target language Portuguese language the Pounds through visual using deaf literature as a way to teach, making it a better understanding to the subject under discussion and having as main purpose take this information is of paramount importance for the person with hearing loss, allowing the deaf learn about dengue fever and porvindouro relay their
learning to the deaf community.

**Keywords:** surveillance. Epidemiology. Dengue fever. Deaf. Education.

**1 INTRODUCTION**

Since the end of last century, the world returned her gaze to the special groups. Such groups represent those individuals with disabilities, i.e. people with some type of disability that prevents in whole or in part to participate fully regular social activities. The society is full of examples of deficiencies (RUN, 2013).

Currently, individuals with deafness are increasingly encouraged to include activities and definitely in the services that the system provides to all. Thus, new models of inclusion are proposed and tested all the time, as specific vacancies in schools and public procurement. Rinaldo (2003) States that "the Community shall learn that, when one of its members is born with disabilities, all members must assume together the commitment to build an inclusive environment." People with deafness represent a sign that we're all different, and that this difference before something negative, can lead us to more tolerant attitudes terms with such difficulties.

Thus, the public health system, cannot give up fit the needs of this clientele, this requires a large clarification for the deaf person on the sites where the insects use as breeding grounds, so that each person can contribute more actively in action, promotion and maintenance of their health and the deaf person and/or listener (AB , 1998).

Therefore it is necessary to engage as a warning against a possible outbreak of dengue fever, although the company has concern with the disease, there is still much to do, especially in counties that have an inadequate garbage collection system and lack of basic sanitation (DONALISIO; GLASSER, 2002).

Daily communications vehicles, are circulating information expressing numerous episodes, which are considered of great importance for the deaf person and listener. One of the facts that are treated by the media, are those related to the problems in the area of public health, especially at the present time, we can mention the dengue fever. Since ancient times, the companies had an interest in establishing relationships between environmental factors and health, to prevent the occurrence and spread of new cases of diseases such as dengue (AB, 1998).

Therefore, the present research aimed to sensitize the person with hearing loss for the theme are in the media and that is of extreme importance to your literacy rescuing a multiplier of the deaf community citizen duty.
At first sought to provide for these individuals the same clarification of disease and cause the vector Aedes aegypti, the others.

The second showed the way out of the use of the Portuguese language translation for the Brazilian Sign Language (Libras) to interpret the subject for better understanding of the person with hearing loss.

On the third time, provided as happened the dengue fever in the city of theme Marituba-PA by deaf literature with lecture using image production (classifiers) to the understanding of the deaf.

2 METHODOLOGY

For the development of this article, we used the qualitative approach with a focus on action research, as says:

The action research methodology-participant articulates, radically, the production of knowledge with educational action, that is, on the one hand investigates, produces knowledge about reality being studied and, on the other hand, performs at the same time an educational process for the counter of this reality. Another important factor to remember that this kind of research leads to qualitative research. (TOZONI-KINGS, 2006, p. 7).

Action research-Understanding dengue-was held at escola Municipal Paulo Freire in the municipality of Marituba, located in the metropolitan region of Belém-Pará, where used materials for better understanding of the theme like: Banners, leaflets and video related to the topic, where the literary production was used in lecture mode on dengue in Portuguese language (L2) for translation/interpretation for the Quid (L1). Informing about the disease and the care for the Elimination of the dengue-causing Aedes aegypti insect.

3 results and discussion

3.1 UNDERSTANDING DENGUE fever

Dengue is a disease with non-contagious infection caused by a virus (BOSCHILIA, 2003). The clinical institution recognized the disease from 1779 (LOYOLA, 2000).

The Aedes aegypti is a vector of dengue fever, and is a species of mosquito originating in Africa, it is believed that reached the American continent along with the big boats, bringing the slaves at the time of colonisation by the 16th century. And the virus that causes the disease from the continent of Asia, and only admitted in America after (NAIR, 2003).
Its etiology established himself in the 40, when developed appropriate laboratory techniques to allow the isolation of the virus and its porvindoura. For Teixeira (1999), throughout history one can see that the incidence of the epidemic is grouped with the arrival of new serotypes by inserting in those areas.

There are 4 serotypes of the dengue virus, called serotype 1, 2, 3 and 4. In the year 1954, the serotype 2 virus, was isolated for the first time in America, on the island of Trinidad Tobago & but the dengue virus only intensified after the Decade of 60. The serotype 1, presented his appearance in 1977, in Jamaica, coming probably from the African continent. From then on the countries of South America, which were free of dengue were affected by an epidemic caused by this serotype. Already the serotype 2, coming from Asia, was responsible for the first outbreak of hemorrhagic fever occurred outside that location (BRAGA; VALLE, 2007).

In the year 1981, there have been several epidemics with the introduction of type 4 in the Americas believing coming from Pacific Islands. The serotype 3, which was not found since 1978, resurfaced in 1994 in the countries of Nicaragua and Panama. And in the year 1995 the dengue fever was already the most important mosquito-borne viral disease in the world (BARNES; VALLE, 2007).

At the beginning of the second half of the 20th century, noted positive serum to the disease in the Amazon, the first epidemic was only recorded in 1982 in Roraima in the city of Boa Vista, produced by the virus serotype 1 and 4. There were also cases of dengue fever in early 1980, with classic dengue outbreaks in the States of Rio de Janeiro, Alagoas, Ceará, Pernambuco, São Paulo, Bahia and Minas Gerais (TEIXEIRA et al., 1999).

The epidemic of Boa Vista, capital of the State of Roraima, in 1982, was a landmark in Brazil's medical history and showed the Aedes aegypti surveillance deficiency. With that, the epidemic was only detected when the epidemic curve was in decline and did not know even the time that boa vista was dominated by the mosquito. The serotypes responsible for approximately 11,000 cases of infection were serotype 1 and serotype 4 (FACACCIO, 2010).

In the State of Pará two small outbreaks in the State were reported in 1995 in the municipalities of Redemption and Rondon do Pará, whose serotype 1 was isolated. In the State of Tocantins epidemics occurred every year showing people infected with dengue fever of serotype 2 (Lion, 1997).

The Aedes aegypti is the main transmitter of the urban yellow fever and dengue fever worldwide, came from Africa to America during the colonization and slavery, first disseminated in every tropical track in sight to his peculiar mode of reproduction and today is considered cosmopolitan. Females perform oviposition on the wall of any container, close to the water level (NAIR, 2003).
In Brazil the *Aedes aegypti* has as its preferred breeding sites the most varied household water containers and peridomiciliares: unused tires, cans, bottles, plates with potted fern, water tanks, pools without use, among others (Figure 1).

![Figure 1: Breeding for the proliferation of the dengue mosquito.](image)

Figure 1mostra some of the containers where insect proliferation can occur. The blood-feeding, copulation and oviposition are diurnal. It was believed that this mosquito has active dispersion and small, rarely exceeding the 200 meters, but recent research shows that the ability of flight of pregnant females is 700 m/day this vector lives around of 20 days (NAIR, 2003).

Holding the hematophagy, both inside and outside of the houses, mostly in 07 hours to 10 hours and after 16 to 19 hours. Predisposition to suck the human being, particularly in the legs, but also feeds on other animals. This behavior has great importance because a female epidemiological infected can have multiple short blood feeds in different hosts taking so the dengue virus. These viral particles are inoculated through the insect's saliva (NAIR, 2003).

In the evolutionary cycle of the dengue mosquito (Figure 2), the eggs are resistant to desiccation and can remain for more than a year, after contact with water, the larvae can hatch in the first 15 minutes. The
ability of desiccation of the eggs is considered to be one of the obstacles for your control. Because this allows these eggs are transported over long distances in dry environments.

Figure 2: the evolutionary cycle of the dengue mosquito.

Figure 2 highlights the evolutionary cycle of the insect vector. Hence the increase in the population of *Aedes aegypti* during the rainy season. The bug can be recognized easily by General color medium brown, showing a sharp curve, black and white stripe on each side of the thorax (mesonoto) and another thin, straight, longitudinal, central, which form the figure of a lira (NAIR, 2003).

The dengue virus belongs to the B group of Arboviruses, family *Flaviviridae*, genus *Flavivirus*. This type of genre has a coverage of 60 virus, 21 of which have been described as being pathogenic for humans. Includes 4 (four) immunologically distinct: dengue fever dengue fever dengue 1, 2, 3 and 4 dengue. After the incubation time of 4 to 6 days and this period may vary also from at least 3 and a maximum of 10 days, the dengue virus is present in the bloodstream of patients in the acute phase of the disease. Infection by these serotypes in humans produces permanent immunity against a new serotype causing infection, but infection occurs only a partial immunity against the other serotypes, i.e. a temporary immunity against other types (VERONESSI, 1991).

*The Aedes aegypti* is a vector which acts as a reservoir, because once infected, the insects will remain
throughout his life with the virus. The Aedes more important is the Aedes aegypti that is perhaps the only vector of dengue in the Americas (Lion, 1997).

The man all serotypes can cause fever or haemorrhagic form of classical dengue fever with or without shock, not know what a type is more pathogenic than the other (Brazil, 2006).

Infection by the dengue virus causes a disease whose aspect varies from the way unapparent or asymptomatic, but may be an evolution for the lethal (FUNASA, 2002).

Dengue fever, in his classic is characterized by fever, muscle pain, joint pain, red spot on skin and small hemorrhagic manifestations. This is the way, but bland of the disease, whose symptoms regress around seven days, the most severe form, dengue has symptoms similar to dengue fever, but in the third and fourth days, begin to occur internal bleeding, blood pressure decreases, the lips turn purple, affect abdominal pain among other symptoms leading to death (AMABIS, 2006).

Dengue hemorrhagic fever probably occurs when a patient who's had dengue is exposed to infection by another serotype of the virus. And with that the mutual influence of individual factors, epidemiology and the virus itself can promote this condition for the emergence of this new disease (AB, 1998).

The laboratory diagnosis has specific main importance in areas without and with the presence of the insect, Aedes aegypti in the localizations with established transmission, but with few cases. The result for laboratory confirmation can be done by virus isolation, serological tests, detection of genome and viral antigens (Lion, 1997).

For classical dengue fever still there is no specific treatment, but the medication is only symptomatic with the use of analgesics and antipyretics, and to avoid the use of salicylates and anti non-hormonal, that using hemorrhagic manifestations may appear and acidosis, the patient should be instructed to stay home and begin an oral hydration (FUNASA, 2002).

However, Ab (1998) brings us back to the fact that we must warn that only oral hydration, most of the time is not enough, and that in the most severe cases, whether to employ the intravenous hydration with physiological saline and dextrose, until the hematocrit decrease, and the normality of diuresis and the stabilization of blood pressure, therefore, the DHF patients should be observed carefully to identify the first signs of (Figure 3).
Figure 3 represents the medical assessment on the symptoms of the disease – dengue fever. The most critical period occurs during febrile phase transition for afebrile, which usually occurs during the third day of the illness. In less serious cases the vomiting of patients threaten to cause dehydration or acidosis, or there may be signs of hemoconcentration, your rehydration can be made in laboratory level (FUNASA, 2002).

The most effective vector control is still prevention, since transmission involves the cycle man-insect-man. The female Aedes aegypti mosquito, being vampire feeds on human blood, and biting an infected person, the virus begins to multiply within the insect, in turn passes to contaminate others. There is no transmission by direct contact of a person infected with their secretions, transmit disease to a healthy person, not even through food (AB, 1998).

The best method even more effective for reducing incidence of dengue fever is still in control of the Aedes aegypti mosquito. Intending so to eliminate the breeding grounds, since it is a problem of domestic sanitation. The great challenge is to raise awareness of the deaf person/listener to the insect extermination to control dengue. (AMABYS, 2006)

3.2 TRANSLATION/INTERPRETATION of the PORTUGUESE LANGUAGE (L2) to POUNDS (L1)
Learning the Portuguese language as L2 (L2-is the second language spoken. L1-mother tongue, i.e. the first language) for the deaf person must take into account that it is a different process to the listeners, who learn the Portuguese language at home, in family relationships. Most deaf people comes to school without a language. It being understood that, for hearing loss, they comprise the interact with the world through visual experience, expressing its culture primarily using Brazilian Sign Language-Pounds, the Federal Decree No. 5,226, of 22 December 2005, States that the deaf students are subjected to a bilingual education, in which the Portuguese language, in writing mode , is the second language (L2).

The fact that the process be accomplished through Visualpatial language, ensuring that the language school if develop in deaf children, requires a change in the ways in which this process has been handled in the context of the teaching of sign language as L1 (STOKOE, 1965, p. 02).

The author comments that the Pounds as L1, develops communicative competence of the person with hearing loss, so that it can carry out a worldview so magnified and contextualized. All human language-like sign language spoken by the deaf – meets the criteria of creativity, flexibility and versatility. Therefore, as language is the Pounds is not superficial, is a natural language, that emerges from the community and turns over time, is dynamic and with content absolutely unlimited. You can say anything in pounds-since the sinalizante have creep-because even in the absence of common words between Pounds and Portuguese language, there is possibility of transmission (translation/interpretation) of the concept of the word.

Regarding the possibility of transmission of the concept of the word, when searching a lecture concerning dengue. Taking into consideration that among the participants there were deaf people, needed to use in addition to the oral language, the language indicated: details of natural languages with transmitter-receiver differentiated channel. For better understanding of what you're trying to explain, he illustrated a part of text of lecture on prevention of dengue fever. It is observed in table 1, where points of the presentation of the snippet work performed:

<table>
<thead>
<tr>
<th>Text in Portuguese language (L2)</th>
<th>Text in POUNDS (LI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dengue is a disease that if left untreated can lead to death, the person is causing the mosquito &quot;Aedes aegypti.&quot;</td>
<td>DENGUE DISEASE CARE-NO, BE ABLE TO DEATH. DENGUE NAME-E-D-E-S-E-G-Y-P-T-I.</td>
</tr>
</tbody>
</table>

Table 1: text in Portuguese language (L2) and text in pounds (LI).

The phrase in Portuguese language was translated to Pounds, for better understanding of the work that has been developed during the lecture. To show this translation process, intended, do a little wake-up call as to the differences in the grammatical structures of these languages.
According to frames (2004):

A translation always involves a written language. So, can we get a translation of a sign language to written language to a spoken language, written language to the spoken language, the written language for the sign language, sign language to written language, sign language writing for the writing of the spoken language and the written language for writing the language of signs. The interpretation always involves the languages spoken/flagged, i.e. in auditory and Visual-oral-space. So, can we have the interpretation of sign language to spoken language and vice versa, the spoken language to the language of signs. It is worth noting that the term translator is used in a more widespread and includes the term interpretation. (Frames, 2004, p. 9).

Important if you do point out that the interpretation it can be subjective, because it can be transmitted the information varied ways, including through the use of classifiers is a morpheme type used by setting the hands and some physical property may have different meanings, although present classifier and express to the better understanding of the deaf (SUPALLA, 1982).

The theme "knowing dengue", proposed in this article for the deaf, is an attempt to combine information drawn from several bibliographical sources and in practice, that generously reveals himself, in the form of exchanges of experiences, in which stand out the deaf, aware of their social performance in the promotion of Deaf culture, and teachers/researchers listeners, providing information on educational issue of the deaf.

Finally a contribution from people who not long ago returned the look for the deaf, in the face of a named professional, which soon turned into enthusiasm and desire to learn more and participate in the discussions and actions for the benefit of the deaf community, the task of building a multicultural society and fraternal (SALLES, 2004).

There is a set of practices and events within the Deaf culture that activate the signal language and its forms of interaction producing both individually and social literacy that reveal its own dynamic acting and interacting socially. Watching playful experiences produced with the language of signs, realizing the spontaneity in creation present textual in associations of the deaf have a particular framework that culturally and is represented through the deaf narratives.

Analyzing also the experiences that occur in school spaces where there was the possibility of meeting deaf-deaf also shows a methodology that puts into perspective a shape of creation with regard to aspects of a visual language, imagery, body expression and artistic representation.

### 3.3 DEAF LITERATURE
Deaf literature has a proposal similar to what concerns the brazilian literature to listener with regard to works and authors.

Deaf literature has a different memory, next the cultures that transmit their presence and oral stories. Manifesting itself in the stories narrated in signs, but the record of stories told in the past remains in memory of some people or have been forgotten. "To reflect on visual literature must think this text mode came at a time when deaf people have appropriated the knowledge about the production power of imagery your tongue." (DO, 2011, p. 169).

In this context the lecture about dengue fever arises from the need to provide the deaf community, knowledge about the prevention of dengue fever, and for both, docked in the precepts of the deaf literature.

According to Faria (2011):

Today we can consider three types of literary productions. The first is related to translation into sign language of written literary texts; the second is the result of adaptations of classic texts the reality of deaf and finally, the type that really represents the Deaf literature that is the production of texts in prose or verse made by deaf people. (DO, 2011, p. 169).

It was about the second aspect that broke if this research because it considers that the preventive knowledge about dengue fever, it is a classic study on society in General, and in this case, the reality of deaf, inserted in that context.

The deaf are part of a visual group, a deaf community that can extend beyond the national sphere, on the world level. Is a community that crosses borders. "So that they are part of a national society, with an own sign language and cultures shared with people your country listeners." (Tables; SUTTON-SPENCE, 2006).

This coverage tends to be greater, from the moment that teaching sign language writing becomes a part of the school curriculum and circular in literary productions.

[...] It is noticed that deaf storytellers seek the path of self representation in the struggle for the establishment of the who recognize how their identities through the legitimacy of their language, their ways of narrating the stories of their forms of existence, of its forms to read, translate, design and judge the cultural products they consume, and they produce. (KARNOPP, 2010, p. 172).

In addition to the importance of the records in pounds, is also found several literatures, present in
associations of the deaf, in schools, in venues from the deaf community.

These exhibitions are of great importance for understanding the literary production in signs. People with deafness, living with people, listeners in their workplace or with your family, if appropriate of visual media to cover knowledge and relate to people listeners (Figure 4).

![Figure 4: presentation of the theme dengue in pounds.](image)

Figure 4 displays the interpretation of theme dengue in pounds with the interaction researcher/lecturer and community (deaf and listeners), using audiovisual materials for better understanding of all.

There was interest in the theme in pounds, where the deaf guy happened to be inserted in the social context, and had an active participation in seek of knowledge, where reinforced the need for discipline Pounds in schools. People who attended the lecture listeners have shown interest in the subject and the language of signs. And the deaf by understanding dengue fever becomes this intermediation for the deaf community where it is inserted. Because the Deaf culture refers to the deaf themselves, their languages and organization. The deaf involved with the Deaf culture identifies itself as participant (SKLIAR, 1998).

However bringing information about dengue within Deaf culture, the same shall wisdom talking or even inform with property in pounds and thus making it the multiplier agent of this information for other deaf
people.

4 FINAL CONSIDERATIONS

The lecture on dengue to person with deafness in Paulo Freire in Marituba school in the metropolitan region of Belém-Pará, comes to emphasize the brazilian sign language acuity to tow the deaf person and listener. Act view the deaf students were able to understand the importance of knowing about the mosquito and disease, and began to include in the theme with autonomy. The demonstrations of the students teachers and listeners about the interest to learn the pounds to have direct contact with the deaf person only reinforced the need to get more knowledge. The deaf person knowing such information to dengue, passes to multipliers on the subject, and take to your community (deaf) prevention and knowledge of disease. Since it is right to have all this information.

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[1] Biologist. Microbiology Specialist. Well-versed in Pounds. College UNISABER. E-mail: heldyfreitas@gmail.com;

[2] £ Specialist, master in e. Mathematics. College UNISABER. E-mail: heldyfreitas@gmail.com;

[3] Biologist. Doctor of medicine/Tropical Diseases. Lecturer and researcher at the Federal University of Pará – UFPA. Email: euzebio21@yahoo.com.br (corresponding author).