



FINAL REPORT OF PROJECT EXECUTION

Infectious diseases transmitted by the *Aedes aegypti* mosquito, dengue, chikungunya and zika: a challenge for health systems.

Supporting pharmacists to contribute to the improvement of public health in the Americas' population.



March 2018



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DE FARMACÉUTICOS

DOCUMENT AUTHORSHIP

The report was written by Nuria Montero Chinchilla, PhD, Director of Pharmaceutical Practice of the Pharmaceutical Forum of the Americas, 2017-2019.

APPROVAL

This report was presented and approved in Session N.º 7 (2017-2018) of the Executive Committee of the Pharmaceutical Forum of the Americas, held on March 17th, 2018.

CONFLICT OF INTERESTS STATEMENT

None of the people involved in the execution of the project *Infectious diseases transmitted by the Aedes aegypti mosquito, dengue, chikungunya and zika: a challenge for health systems. Supporting pharmacists to contribute to the improvement of public health in the Americas' population* have academic, economic, financial, political interests or others that may bias their judgment and, therefore, the results obtained.



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The Pharmaceutical Forum of the Americas acknowledges the contributions of all people and pharmaceutical organizations involved in the implementation and development of this project.

In particular, we are thankful for the financial support of the International Pharmaceutical Federation by means of the Foundation for Education and Research, which made the execution of this project possible.

The completion of this project is a joint effort of all its participants.

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I. INTRODUCTION

Diseases caused by arboviruses are a severe problem of public health globally. Their surveillance and prevention not only involve the control of the viral disease, but also the surveillance of the vectors.

Dengue, chikungunya and zika are viral diseases transmitted by arthropods that spread quickly, affecting a high percentage of the population. Viruses which cause these three diseases are generally transmitted from person to person through the bite of mosquitos from the *Aedes* genus, mainly the *Aedes aegypti*, vector of the disease. Any person can get sick, regardless of their age, gender, ethnic group or social class.

The American continent has been the place where the growth of these arbovirus infections has been more evident. Dengue is the viral disease transmitted by mosquitos, with the highest prevalence in the Americas and the most suspected in patients with fever since it remerged in the 1990s, the subsequent arrival and circulation of the four virus serotypes and the incidence increase and the presence of severe disease conditions. More recently, the introduction of two new arbovirus infections, chikungunya virus at the end of 2013 and zika virus in 2014, has created a new challenge for public health in the Americas, since both can move forward at a great speed without stopping at sea or land borders, affecting an elevated number of people in its way.

Upon this new and complex scenario, and to alleviate the load these diseases in the population's health, it is fundamental to give health personnel materials which enable them to be updated on the subject, for them to deploy actions aimed at improving the detection, management, prevention and control of dengue, chikungunya, zika and other arbovirus infections. The pharmacist, as a health professional and member of the health team, is called to be actively involved in the programs for fighting against these arbovirus infections.

Promoting the pharmacist's participation in activities fostering public health and preventing diseases is one of the goals of the Pharmaceutical Forum of the Americas (PFA) and its member organizations. Considering the increasing number of cases of diseases transmitted by *Aedes*

aegypti mosquito in the region of the Americas, and the successful action developed by the Federal Council of Pharmacy of Brazil, the PFA participated in a call for projects of the International Pharmaceutical Federation (FIP) to financially support the project execution: *Infectious diseases transmitted by Aedes aegypti mosquito, dengue, chikungunya and zika: a challenge for health systems. Supporting pharmacists to contribute to improve public health in the Americas' population.* The aim of the project is to provide pharmacists with the tools needed for them to formulate, implement, develop and participate in activities and programs aimed at detecting, managing, preventing and controlling diseases caused by arboviruses, and in this way, contributing to improve the efficiency of the health care system in the Americas' region.

In this way, on October 10th, 2016, the FIP signed a memorandum of understanding with the PFA, to support the execution of the project stated for one year. For this purpose, the FIP gave the amount of US \$8,500.00 in the following terms:

1. 50% of the grant amount after signing the memorandum.
2. The remaining 50% after receiving the final report of the project execution.

On August 4th, 2017, upon a project restructuring, the PFA requested authorization from the FIP to extend its execution for 6 additional months. The FIP approved this extension.

II. PHARMACEUTICAL ORGANIZATIONS INVOLVED

1. Pharmaceutical Forum of the Americas
2. International Pharmaceutical Federation
3. National pharmaceutical associations that are members of the Pharmaceutical Forum of the Americas:
 - Argentinian Pharmaceutical Confederation
 - Federal Council of Pharmacy of Brazil
 - College of Pharmacists of Costa Rica
 - College of Chemists, Biochemists and Pharmacists of Pichincha (Ecuador)
 - Association of Pharmaceutical Chemists of Paraguay
 - Association of Chemistry and Pharmacy of Uruguay

III. GOALS

3.1 General goal

To support the participation of pharmacists and their contribution to improve the efficiency of the health care system and public health related to infectious diseases such as dengue, chikungunya and zika in the region of the Americas, giving them the necessary tools to carry out this function.

3.2 Specific goals

- 1) Integrate the technical team in charge of the project execution.
- 2) Collect technical documents and materials previously produced by technical bodies and pharmaceutical organizations.
- 3) Set up a dedicated site in the website of the PFA and other electronic tools of social communication to release the information generated during the project execution.
- 4) Develop a communication campaign to prevent and control diseases transmitted by the *Aedes aegypti* mosquito by national pharmaceutical organizations and community pharmacies.
- 5) Write technical documents that identify the activities pharmacists may develop in the context of a public health campaign related to the prevention and control of diseases transmitted by the *Aedes aegypti* mosquito.
- 6) Formulate a proposal of training plan addressed to pharmacists so that they can improve their performance in the development of prevention, control and care programs of diseases transmitted by the *Aedes aegypti* mosquito.
- 7) Assess and document the results obtained with the project execution.

IV. METHODOLOGY

The project execution started in February 2016 and finished in November 2017. In the Project Execution Plan, the activities, people in charge, goals and budget estimated for its development for each of the specific goals are specified.

Since the execution of activities covered in the specific goals 5 and 6 have not ended as of the closing date of the project execution, a Plan for the Execution of Pending Activities was made, which shall be developed from January to December 2018.

The project was executed in three stages:

4.1 First stage: Collection of technical documents and informative/educational materials

Specific goals from 1 to 3 were addressed.

By using the experience previously developed by the Federal Council of Pharmacy of Brazil (CFF), technical documents and informative materials, both written and audiovisual, produced by national, regional and global technical bodies, were identified and collated.

By asking the pharmaceutical organizations members of the PFA, documents and materials related to the project were identified; they had been produced and/or used by these or other health organizations or by other types or organizations, in the development of activities related to the fight against arbovirus infections, for example, the ones developed by the CFF and the College of Pharmacists of the Province of Buenos Aires (Colegio de Farmacéuticos de la Provincia de Buenos Aires.)^{1,2}

All the collected documents were useful to supply the virtual shelf created in the webpage of the PFA so as to store technical documents, informative and audiovisual materials and reports of achievements obtained with the project execution. All this documentation was subsequently used as a support in the communication campaign for prevention and control of diseases transmitted by the *Aedes aegypti* mosquito (specific goal 4).

Facebook and the newsletter of the PFA were also used as promotion means for information, actions and achievements obtained with the project execution

4.2 Second stage: Development of national communication campaigns for the prevention and control of diseases transmitted by the *Aedes aegypti* mosquito

Specific goal 4 was developed.

¹ Federal Council of Pharmacy of Brazil. Permanent campaign of pharmacists in action: everyone against *Aedes aegypti* (2016) (Campanha Permanente Farmacêuticos em Ação: Todos contra o *Aedes aegypti*) (2016)

² College of Pharmacists of the Province of Buenos Aires (Argentina).

- Campaign: Those who take the mosquito away from you protect you against dengue (Quien te quita el Mosquito, te cuida del Dengue) (2011-2012)
- Campaign: Chikungunya for population (Chikunguña para la población) (2014)

The goal of this campaign was transforming each pharmacist into a fighting agent against the *Aedes aegypti* mosquito and each pharmacy into an action point against the three diseases transmitted by the vector (dengue, chikungunya and zika), which today constitute a public health problem.

Regarding the informative/educational material that would be used in the national communication campaigns for prevention and control of diseases transmitted by the *Aedes aegypti* mosquito, a decision was made to translate the documents written by CFF. The CFF not only supported the translation, but also elaborated and supported the graphic design for their reproduction. Likewise, the Argentinian Pharmaceutical Confederation (CoFA) designed a poster referring to the arbovirus infection and its effects in pregnant women.

Subsequently, the campaign name was designated, Pharmacists united against dengue, chikungunya and zika (*Farmacéuticos Unidos contra el Dengue, Chikungunya y Zika*), and the execution date was defined. September 25th was chosen to celebrate the World Pharmacist Day.

By using the different types of communications, organizations members of PFA were requested and encouraged to perform a communication campaign for prevention and control of diseases transmitted by the *Aedes aegypti* mosquito, from the national pharmaceutical organizations and the community pharmacies, as a part of the commemorations of the World Pharmacist Day, by using the same visual identity and the informative/educational materials elaborated by the PFA.

It must be stated that some national pharmaceutical organizations, such as the College of Pharmacists of Costa Rica (ColFar), performed the campaign on a date other than September 25th, according to the epidemiologic peaks of these diseases in their country.

The Executive Committee of the PFA, along with the CoFA, organized and performed the campaign launch as part of the 76th World Congress of Pharmacy and Pharmaceutical Sciences of the FIP and the XXI Argentinian Pharmaceutical Congress of the CoFA, held in Buenos Aires (Argentina), from August 28th to September 1th, 2016.

To collect information about activities developed by the pharmaceutical organizations member of the PFA in the context of the national campaign *Pharmacists united against dengue, chikungunya and zika (Farmacéuticos Unidos contra el Dengue, Chikungunya y Zika)*, a template was used that subsequently enabled the systematization of the information. Reports from the following organizations were received: Argentinian Pharmaceutical Confederation, Federal Council of

Pharmacy of Brazil, College of Pharmacists of Costa Rica, College of Chemists, Biochemists and Pharmacists of Pichincha (Ecuador) and Association of Chemistry and Pharmacy of Uruguay.

Third stage: Preparation of technical documents and training activities intended for pharmacists

Goals 5 and 6 were developed.

To prepare the technical document that identifies and describes the activities the pharmacist can carry out in the context of a public health campaign related to the prevention and control of diseases transmitted by the *Aedes aegypti* mosquito, its production was identified and requested by a Costa Rican pharmaceutical professional. In the writing stage, the document was checked three times before obtaining the version that would be subject to study by external reviewers. The document shall be designed for its electronic publication.

The training program addressed to pharmacists from the Americas' Region includes a self-learning virtual course, which curricular design shall be provided by the College of Pharmacists of Costa Rica (ColFar), which shall be formulated and supported by the experience developed by this professional entity with its national course. The course shall be hosted in its educational platform (www.colfar2.com) and ColFar will assume the administration of the educational activity, whose first edition shall be offered from September to November 2018. This educational program is being coordinated by the Directors of Professional Practice and Pharmaceutical Education of the PFA.

Likewise, the Directors of Professional Practice and Pharmaceutical Education of the PFA are organizing three virtual conferences using the GoToWebinar platform supplied by the FIP. Previously, the authorization for its use, as well as the activity diffusion and the participant registry were coordinated with the FIP. Webinars shall be given in Spanish and English.

V. RESULTS

Specific goal 1: Conformation of the project execution team

So as to develop the project, a technical team was formed, and modified in the different stages of its execution, but has always been coordinated by the Director of Pharmaceutical Practice of the PFA. Stages one and two were conducted by Josélia Cintya Quintão Pena Frade, PhD (Brazil). In this opportunity, a WhatsApp group of national technical mentors was also created and acted as a support group for the technical team of the project. Stage three of the project is being conducted by Nuria Montero Chinchilla, PhD (Costa Rica), currently, the Director of Pharmaceutical Practice of the PFA.

For the specific case of the communication campaigns for prevention and control of diseases by arbovirus infections, each national pharmaceutical organization formed a work group to design, implement and develop this activity in their respective countries.

Specific goal 2: Collection of technical information and informative/educational material

The technical documents, written and audiovisual informative materials were identified, reviewed and compiled in an early stage of the project execution by the Director of Pharmaceutical Practice of the PFA, Josélia Frade, PhD (Brazil), supported by another member of the technical team, Gustavo Doderá Martínez, pharmacist (Argentina). All this documentation was a base to elaborate the materials used in the communication campaign of the project.

Specific goal 3: Electronic tools of technical and social communication

A virtual shelf was set up in the website of the PFA, where the technical documents, written and audiovisual informative/educational materials were placed, whose contents were periodically updated. Below, a view of the dedicated site in the website home page:

<http://forofarmaceticodelasamericas.org/farmaceticos-unidos-contra-dengue-chikunguya-y-zika/>



Figure 1. Site dedicated to arbovirus infections in the website of the Pharmaceutical Forum of the Americas

The PFA Facebook was also used to release technical information regarding arbovirus infections, as well as to communicate several activities that were carried out as a part of the project. The newsletter issued periodically by the PFA was used to publish the most important news that were being generated with the project execution. An example of the published reviews can be read in the following box:

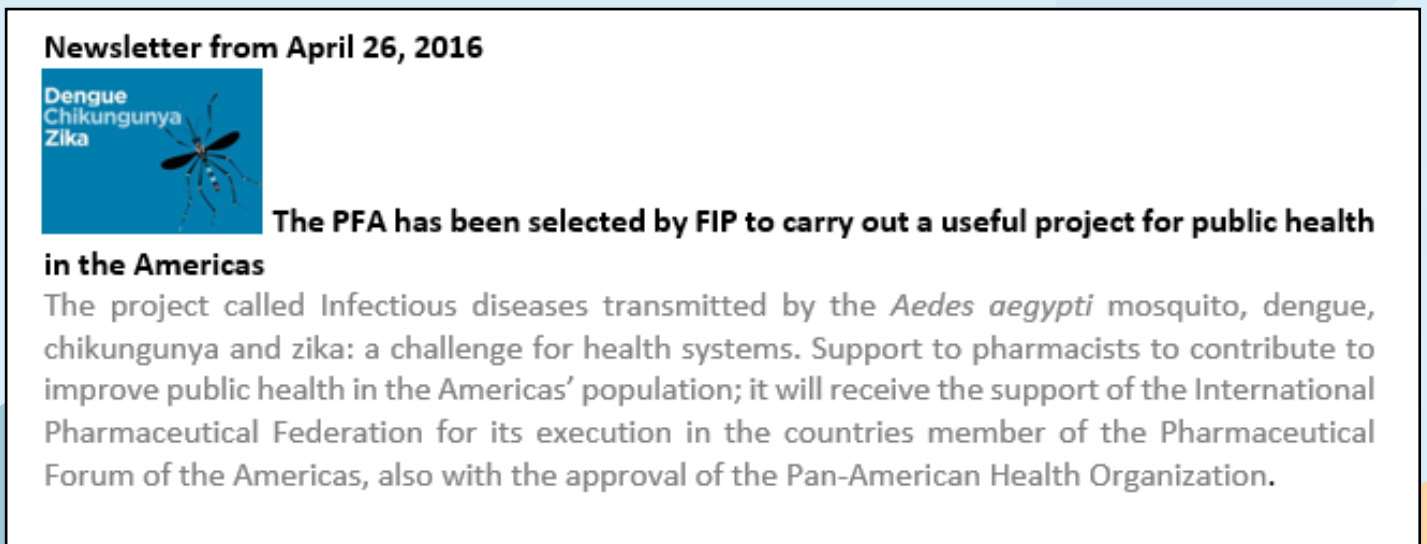


Figure 2. Example of newsletter with news about the project

Specific goal 4: Communication campaign to prevent and control diseases transmitted by the *Aedes aegypti* mosquito by national organizations

4.1 Informative/Education material

The technical group prepared the following materials, which graphic arts were sent to the member countries of the Pharmaceutical Forum of the Americas (PFA) to be used in their national campaigns:

- Brochure intended for pharmacists: zika, chikungunya and dengue. Pharmacists, learn how to receive, evaluate and care! (Look at annex 1)
- Brochure intended for the population: zika, chikungunya and dengue. Inform yourself! (Look at annex 2)
- Poster about dengue, chikungunya and zika, and its effects on the pregnant woman. (Look at annex 3)

4.2 Campaign presentation

The campaign launch was carried out in the context of the 76th World Congress of Pharmacy and Pharmaceutical Sciences of the International Pharmaceutical Federation (FIP) and the XXI Argentinian Pharmaceutical Congress of Argentinian Pharmaceutical Confederation (CoFA) held in Buenos Aires (Argentina), from August 28th to September 1th, 2016. In the congresses venue and, as part of the scientific-commercial exhibition, a stand was placed where pharmacists of the CoFa offered information and answered queries from the participants of the abovementioned congresses.



Figure 3. Information and queries stand. Campaign launch Pharmacists united against dengue, chikungunya and zika. 76th World Congress of Pharmacy and Pharmaceutical Sciences of the International Pharmaceutical Federation and XXI Argentinian Pharmaceutical Congress of the Argentinian Pharmaceutical Confederation. Buenos Aires, Argentina, August 28th to September 1th, 2016

4.3 National campaigns

4.3.1 Campaign of the Argentinian Pharmaceutical Confederation

It should be noted that the Argentinian Pharmaceutical Confederation (CoFA) as well as some provincial pharmaceutical associations have been participating since 2009 in arbovirus infection prevention and control activities, particularly those related to dengue, taking actions in support of the national or provincial ministerial health authorities.

In the context of the campaign, the CoFA requested all the provincial member associations to carry out the *Pharmacists united against dengue, chikungunya and zika campaign*. For that purpose, it disseminated and made available the materials prepared by PFA. An information conference intended for the public was carried out at the central level, together with the National Ministry of Health.

The CoFA also carried out many dissemination activities intended for the pharmacists and the population using the social media available in that pharmaceutical organization.

The provincial pharmaceutical associations carried out activities of a very different nature. Reports were received from the following pharmaceutical organizations:

- College of Pharmacists of the Province of Buenos Aires (Colegio de Farmacéuticos de la Provincia de Buenos Aires).
- College of Pharmacists of the Province of Chaco (Colegio de Farmacéuticos de la Provincia del Chaco).
- College of Pharmacists of the Province of Entre Rios (Colegio de Farmacéuticos de la Provincia de Entre Ríos).

DÍA MUNDIAL 25 DE SEPTIEMBRE DEL FARMACÉUTICO

¡FELIZ DIA COLEGAS!

LOS INVITAMOS A COMPARTIR UNA SEMANA DE LUCHA CONTRA EL DENGUE, EL ZIKA Y LA CHIKUNGUNYA!



FARMACÉUTICOS: CUIDANDO DE TI

 Colegio de Farmacéuticos de la Provincia de Buenos Aires

 fip International Pharmaceutical Federation

TU FARMACÉUTICO INFORMA

CÓMO PREVENIR Y CÚALES SON LOS SÍNTOMAS DEL DENGUE, CHIKUNGUNYA Y ZIKA

 El mosquito *Aedes aegypti* que transmite *Dengue*, *Chikungunya* y *Zika* solo necesita agua quieta y un poco de sombra para dejar sus huevos y reproducirse.

 Cualquier recipiente con una mínima cantidad de agua puede ser un criadero.

 No se cría en lagos, ni ríos, ni piletas donde el agua se mueve o tiene mucho sol.

 Poné boca-abajo, tapá o eliminá cualquier recipiente que no uses. Evitá que se acumule agua en las cubiertas.

SÍNTOMAS: Fiebre | Dolor de cabeza y detrás de los ojos | Fuerte dolor muscular o en las articulaciones | Vómitos o dolor abdominal | Sarpullido

 **Ante un cuadro febril NO TOMES ASPIRINA NI IBUPROFENO**

ANTE CUALQUIER SÍNTOMA NO TE AUTOMEDIQUES. CONSULTÁ A TU MÉDICO Y/O A TU FARMACÉUTICO.

 COLEGIO DE FARMACÉUTICOS DEL CHACO

 Ministerio de Salud

 CoFA 80 años

Dengue, chikungunya y zika

SI TENÉS ESTOS SÍNTOMAS, NO TE AUTOMEDIQUES Y CONSULTÁ INMEDIATAMENTE A UN MÉDICO.



 Fiebre

 Dolor de cabeza y detrás de los ojos

 Vómitos o dolor abdominal

 Sarpullido

 Dolor muscular y en las articulaciones

0800-222-1002
msal.gob.ar

 Ministerio de Salud
Presidencia de la Nación

CONTRA LOS MOSQUITOS

¡TODOS TENEMOS QUE HACER ALGO!

SEMANAS DE ACCIÓN

DESCARGA LA CAMPAÑA

Para más consultas

0800-222-1002

Figure 4. Materials used in the campaign carried out by the Argentinian Pharmaceutical Confederation and the provincial pharmaceutical member associations

Campaign carried out by the College of Pharmacists of the Province of Buenos Aires: The campaign was part of the final intervention work performed by a group of pharmacists as part of the virtual course of Pharmaceutical Services in Primary Health Care for Managers.

The actions taken by this group of pharmacists were developed in school and community settings, focusing on the educational institutions of San Antonio de Areco and the Autonomous City of Buenos Aires, where they deployed activities intended for students:

- Initial level (kindergarten and first cycle of the primary level): Using a puppet show, playing dynamic and group games, creating a mosquito puppet which the kids will later take home, listening to music and with the support of the educational brochure, they work on the dengue topic and the prevention and control measures of the diseases caused by arboviruses.
- Primary level (second cycle): Through drawings and with the preparation of comic books, the mosquito cycle, ways of transmission of dengue disease and its prevention and control measures are addressed.
- Secondary level: An oral presentation is made supported by videos about the reproductive cycle of *Aedes aegypti*, the way of transmission of dengue disease, its symptoms and the forms of prevention of the mosquito reproduction.



Figure 5. A puppet show and an information brochure used in the activity performed with the students of kindergarten and primary level of schools in San Antonio de Areco and the Autonomous City of Buenos Aires, Argentina

The pharmacists also worked in a nursing home, where they made an oral presentation and with the support of videos, they explained what dengue is, who transmits it, where the mosquito reproduces and how to prevent it. Later, the elderly adults were requested to collaborate with the preparation of the material to be used with kids from kindergarten (mosquito puppets). This way, ages were joined: the grandparents painted the sticks and tongue depressors black, so the children could finish creating the mosquitos, thus creating awareness of mutual help.

Work was also done with a group of young explorers, to whom an oral presentation was made about what dengue is, how it is transmitted, where the mosquito reproduces and the prevention measures, later inviting them to carry out a community activity to inform the population about the prevention measures. The first thing the young people did was to put in order their own physical space removing all the elements which receptacles of mosquitos could be and then they went house by house to bring oral and written information to the neighbours of San Antonio de Areco.



Figure 6. Activities carried out by the pharmacists of the province of Buenos Aires, Argentina, in kindergartens, schools, nursing homes, with a group of young explorers and in a social club, all of which were part of the campaign “We can all do a lot to prevent dengue, chikungunya and zika”

4.3.2 Campaign of the Federal Council of Pharmacy of Brazil

The Federal Council of Pharmacy of Brazil (CFF) and its 27 regional pharmacy councils deployed, since March 2016 the campaign: *Pharmacists in action: everyone against Aedes aegypti*. The Brazilian Association of Community Pharmacy, the National Association of Compounding Pharmacies, the Brazilian Society of Hospital Pharmacy, as well as the Brazilian Society of Community Pharmacy and the National Executive of Pharmacy Students joined the campaign and acted all around the country.

Though the campaign is permanent, in 2016 two great national events were carried out prior to the rain periods: the first one took place on March 19th on the campaign launch, and the second took place on September 25th, reissued and extended so as to gain international reach, in an action coordinated by the PFA with the support of the FIP.



Figure 7. Materials used to disseminate and motivate the pharmacists to participate in the campaigns

Throughout the campaign, the pharmacists were encouraged to offer patients the correct guidance about the diseases, about the risks of self-medication, the protection barriers and the correct use of repellents, including those which are natural from medicinal plants, in addition to the special care necessary for pregnant women in view of the increase of microcephaly cases in the country. From their pharmacies, the pharmacists identify people with suggestive signs and symptoms, they direct the suspicious cases and prescribe adequate therapies for the relief of signs/symptoms when necessary or they refer patients to the health services.

Creation of the dedicated website: In order to support campaign participants, the Federal Council of Pharmacy of Brazil (CFF) developed a dedicated site in its website (www.cff.org.br/farmaceuticoemacao), where not only the information about the diseases is published but also the actions to be taken are disseminated and the campaign materials are made available. It can also be accessed through a mobile device. The site has a virtual library, links to other virtual libraries and refresher virtual courses promoted by the Ministry of Health and other institutions.



Figure 8. Presentation of the dedicated website: www.cff.org.br/farmaceuticoemacao



Figure 9. Presentation of the dedicated website for mobile devices

Support material and dissemination: The educational material prepared for the campaign was offered in PDF version in the dedicated website and distributed in a printed version to several entities.

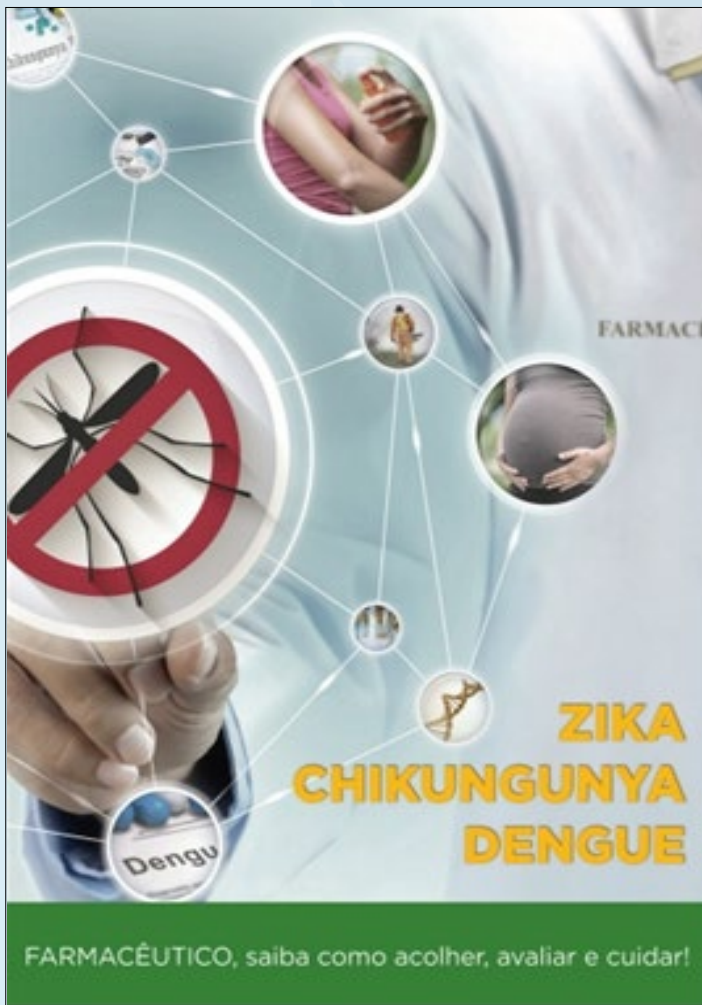


Figure 10. Pocket guide for pharmacists.
<http://campanhacff.wixsite.com/farmaceuticoemacao/folder-de-orientacao-ao-farmaceutico>

O PROBLEMA O país registra uma epidemia de zika, chikungunya e dengue, infecções virais transmitidas pelo *Aedes aegypti* informamos sobre os sinais e sintomas que podem caracterizar essas doenças e suas medidas preventivas.

QUADRO DE SINAIS/SINTOMAS

Sinais/Sintomas	Zika	Chikungunya	Dengue
Febre*	Quando presente, é baixa	Quase sempre presente. Alta e de início imediato	Sempre presente. Alta e de início imediato
Dores nas articulações	Quando presentes, são leves	Presença e intensas em quase 90% dos casos	Quase sempre presentes e moderadas
Manchas vermelhas na pele	Quase sempre presentes, inicialmente nos primeiros dias	Presença em 40% a 70% dos casos, após o 3º dia	Podem ser presentes
Caxumba	Podem ser presentes e de intensidade leve a grave	Ocorre em 20% a 50% dos casos. Podem ocorrer testes positivos	Podem ser presentes de modo leve
Vermelhidão nos olhos	Podem ser presentes	Podem ser presentes	Incidentes, mas é muito frequente e dor na área dos olhos
Hemorragias hemorrágicas	Ausentes	Pouco comuns	Podem ser presentes
Outras Manifestações	Dor de cabeça, dor muscular e mal estar	Dor de cabeça, dor muscular, contusão e dor de estômago	Dores de cabeça, na área dos olhos e musculares de forte intensidade

*temperatura máxima de 38,3 e 38,9 de temperatura febre

SINAIS DE ALERTA!

Todas as pessoas com sinais e sintomas devem ser encaminhadas para avaliação diagnóstica nos primeiros cinco dias das manifestações. Em alguns casos específicos, as manifestações de sinais e sintomas podem requerer um cuidado especializado mais rápido.

Pacientes com:

- sinais e sintomas graves decorrentes da infecção (dificuldade respiratória, problemas no coração, hepática, perda auditiva, redução da sensibilidade de mãos e pés, alterações no comportamento ou visual);
- hematomas na pele ou sangramentos sem motivo aparente (na gengiva e nos hemorroidas, sangue nas fezes, no vômito, ou aumento do volume do sangramento menstrual);
- doenças no fígado, coração, rim ou imunidade reduzida;
- feridas na pele com pus ou odor desagradável.

Gravidez **Criança menor de 2 anos**

Idosos com múltiplas doenças, tomando cinco ou mais medicamentos e com problemas de memória (demência) ou acamados (com limitações de movimento).

CIDADÃO, FAÇA A SUA PARTE!

Medidas preventivas aplicam-se a todas as pessoas que querem evitar a infecção. Elas são FUNDAMENTAIS para interromper a cadeia de transmissão dessas doenças. O *Aedes aegypti* se reproduz em água parada, levando cerca de dez dias para atingir a fase adulta. Evite o acúmulo de água. Não o deixe nascer!

- Mantenha a caixa d'água tampada
- Se usar reservatório, lave-o semanalmente, com sabão e escova
- Enche os pratinhos dos vasos de plantas com areia
- Acondicione o lixo em sacos e mantenha as lixeiras fechadas
- Guarde garrafas vazias com a boca virada para baixo

Na dúvida, procure o farmacêutico!

Figure 11. Information guide for the population.
<http://campanhacff.wixsite.com/farmaceuticoemacao/orientacao-a-populacao>

The following materials were also prepared for their dissemination and guidance on the campaign, and they are available at:

<http://campanhacff.wixsite.com/farmaceuticoemacao/folderes-para-downloads>):

- Banner/poster
- Banner/poster – With space for the logos of the supporting organizations.
- Facebook banner
- Facebook post
- Campaign presentation Power Point.

National event on March 19th, 2016: The campaign was launched on March 19th, 2016, in an event celebrated on Boa Viagem beach (Recife), in a great event coordinated by the CFF and the Regional Council of Pharmacy of the State of Pernambuco.



Figure 12. Activity carried out on Boa Viagem beach on the occasion of the first campaign launch. Recife, State of Pernambuco, March 19th, 2016



Figure 13. Activities carried out by the Regional Council of Pharmacy of Pernambuco

The coverage of the national campaign on March 19th, 2016 was estimated to be 36,414 persons



Figure 14. Different moments of the actions carried out for the campaign launch on March 19th, 2016

The videos and images of March 19th national demonstration are available in:

Report at TV Globo/Bom dia Alagoas

<http://g1.globo.com/se/sergipe/bom-dia-sergipe/videos/t/edicoes/v/conselho-regional-de-farmacia-promove-acao-de-combate-ao-mosquito-da-dengue-no-domingo/5326332/>

Report at Red Globo-TV Verdes Mares /Ceará

<https://www.youtube.com/watch?v=6MrWKtwm42k&feature=youtu.be>

Report at SBT/Mato Grosso del Sur

<https://www.youtube.com/watch?v=OWTi51JY88Y>

Report at TV Banda Amazonas about the event carried out in the coastal community of Careiro de Várzea.

<https://www.youtube.com/watch?v=z0JWYVAhgj0&feature=youtu.be>

Videos produced by the television of the Federal Council of Pharmacy of Brazil/Regional Council of Pharmacy of Paraná

<https://www.youtube.com/watch?v=0vNPTXMogWY>

<https://www.youtube.com/watch?v=irCXJUSyLHE>

Video/report of the activities carried out throughout the country for the campaign:

<https://www.youtube.com/watch?v=DsYPMis-MIU>

Site with pictures of the actions carried out in all Brazilian states participating in the campaign:

www.cff.org.br/farmaceuticoemacao



Figure 15. Activity carried out by Amazonas Regional Council of Pharmacy in an indigenous tribe



Figure 16. Actions carried out by Acre Regional Council of Pharmacy



Figure 17. Actions carried out by Bahia Regional Council of Pharmacy



Figure 18. Actions carried out by Cerea Regional Council of Pharmacy



Figure 19. Actions carried out by Maranhão Regional Council of Pharmacy



Figure 20. Actions carried out by Río Grande del Sur Regional Council of Pharmacy



Figure 21. Actions carried out by Santa Catarina Regional Council of Pharmacy

National event on September 25th, 2016: In addition to the actions carried out in all the capital cities and some inland cities of the states by the Regional Councils of Pharmacy, the Schools of Pharmacy and the associated entities (Brazilian Society of Pharmacists and Community Pharmacies, National Association of the Compounding Pharmacists, Brazilian Society of Hospital Pharmacy), the CFF participated in the demonstration carried out on September 25th in Cangrejo walkway in Aracaju, State of Sergipe, which purpose was to warn the population about the risks involved in the stagnant water in the spread of diseases caused by the arbovirus.

This time, around 64,610 people (an increase of 23% compared to the event of March 19th, 2016) participated in some of the actions of September 25th or received information about the diseases by way of educational brochures for the population and orientation guides for the pharmacists, also supporting the professionals whose mission is to identify the symptoms and guide the patients.



Figure 22. Activities carried out by the Federal Council of Pharmacy of Brazil and the Regional Council of Pharmacy of Sergipe in Cangrejo walkway (Aracaju, Sergipe, Brazil) in the campaign of September 25th, 2016

Campaigns carried out by Regional Council of Pharmacy of São Paulo: For some years, this Regional Council has carried out the activity called *Pharmacists in the square*, which involved around one million people in the two events carried out in 2016, providing coverage to 600,000 people in March 19th campaign and to 400,000 people in September 25th campaign. As it is an existing action, the CFF considered reporting the data of these actions separately.

The second event took place on the eve of the World Pharmacists Day (September 24th), when 27 municipalities of the State of São Paulo gathered in another simultaneous action to fight against the *Aedes aegypti* mosquito.



Figure 23. Pharmacists in the Square. Campaign of the Regional Council of Pharmacy of São Paulo, Brazil

Alliance with the Brazilian Society of Dengue and Arbovirus Infections: In order to offer pharmacists more technical and scientific knowledge about the diseases transmitted by the vector, the CFF approached the Brazilian Society of Dengue and Arbovirus Infections, and they established a successful partnership.

The work group on arbovirus infection and other CFF teams actively cooperated with the development of an educational program on arbovirus infection presented by the Brazilian Society

of Dengue and Arbovirus Infections. The content describes the main prevention methods and actions based on official guides and protocols of the health authorities, in addition to the experience of the professionals involved. Among different approaches, the following are highlighted: vectors biology, the characteristics of arbovirus infections which are important for human health, how to differentiate the main arbovirus infections, the right treatment and the characteristics of these diseases in special populations, such as children, pregnant women, elderly persons and people with comorbidities. Five videos were prepared with which it is expected to update the knowledge for health professionals.

Arboviruses clinical practice guide: The CFF technical group on arbovirus infections is in the preparation stage of a clinical practice guide on arbovirus infections.



Figure 24. Training program on arbovirus infections. Brazilian Society of dengue/ arbovirus infections. You can access the full program in: <https://www.sbd-a.org/>

4.3.3 Project of the College of Pharmacists of Costa Rica

On January 2017, the Board of Directors of the College of Pharmacists of Costa Rica (ColFar) made the decision to implement the national project called *Duties and activities of pharmacists in the prevention, detection and control of diseases caused by dengue, chikungunya and zika viruses*, which proposed actions in pharmacists training, pharmaceutical projection to the community and pharmaceutical communication and images areas.

Technical, informative and educational materials: Technical documents and educational materials previously selected by the project executing group were uploaded to a dedicated site of ColFar website, divided in two categories:

Information for pharmacists about dengue, chikungunya and zika

- http://www.colfar.com/index.php?option=com_phocadownload&view=category&id=18:informacion-para-farmaceuticos-sobre-el-dengue-chikungunya-y-zika&Itemid=217

Information for the community about dengue, chikungunya and zika

- http://www.colfar.com/index.php?option=com_phocadownload&view=category&id=19:informacion-para-la-comunidad-sobre-el-dengue-chikungunya-y-zika&Itemid=217

Besides, information for the community was added in the Information for the public tab, with a separate title that reads: Information for the community use about dengue, chikungunya and zika.

- http://www.colfar.com/index.php?option=com_content&view=article&id=44&Itemid=255

Conference on dengue vaccine intended for pharmacists: A conference about dengue vaccine was organized by the Professional Development Department of ColFar and was sponsored by Sanofi Pasteur pharmaceutical company.



Figure 25. Invitation to the conference on dengue vaccine



Figure 26. Pharmacists who attended the conference on dengue vaccine

Symposium of the campaign launch *Pharmacists united against dengue, chikungunya and zika*: The campaign was presented to the pharmaceutical professionals and health authorities in a symposium organized in ColFar auditorium, where other project components were also addressed.

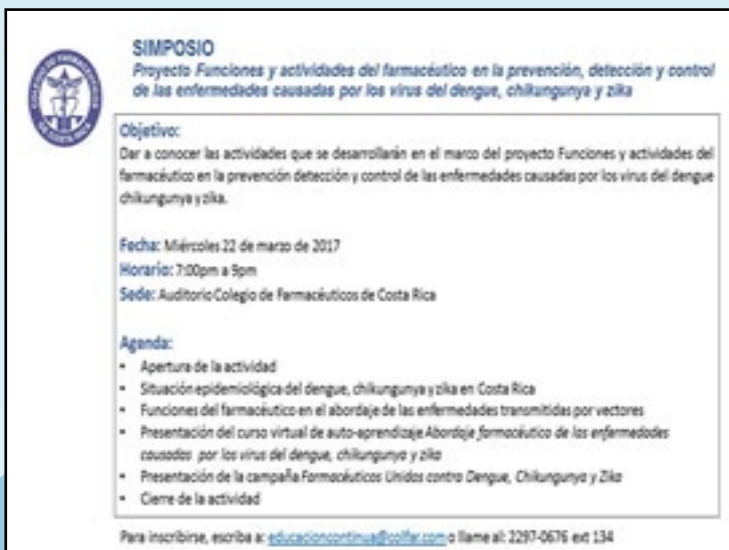


Figure 27. Program of the symposium of the campaign launch



Figure 28. Opening of the symposium of the campaign launch *Pharmacists united against dengue, chikungunya and zika*

Campaign *Pharmacists united against dengue, chikungunya and zika* intended for patients and the community. The campaign was disseminated generally, and pharmacists, pharmacy students and teachers, as well as the population were invited to participate through ColFar social media (website and Facebook) and through print, digital, radio and TV media of the country.



Figure 29. Banners placed on different days in the cover of the website of College of Pharmacists of Costa Rica

The ColFar printed 2,700 brochures intended for pharmacists and 70,000 leaflets intended for the public, which were distributed to all private community pharmacies of the country with the cooperation of two pharmaceutical wholesalers (medicine distributors) and to the universities with pharmacy schools. The materials were also delivered to the participants of the conference on dengue vaccine and the attendants of the campaign launch symposium.

On the other hand, the ColFar created graphic materials with the identification of the main signs and symptoms of dengue, chikungunya and zika diseases, which was an additional material to be used in the campaign.

All the previously identified materials were sent to the pharmacists, the national press and uploaded to ColFar social medial (website and Facebook).

The campaign took place from March 27th to April 15th 2017 (3 weeks), and even though it was planned to be carried out from March 27th to 31th, 2017, it was extended to April 15th 2017, in order to increase the coverage, since many people travel to areas with high incidence and prevalence rates of the diseases to enjoy Easter holidays from April 10th to 15th.

Only the private pharmacies and universities with pharmacy schools participated in this campaign as, due to logistic reasons, the Social Security pharmacies (Caja Costarricense de Seguro Social) indicated that they would implement it in August, coinciding with the second epidemiological peak of the diseases.

All the participants of the campaign were invited through different announcements to report the activities that were developed in the different instances.



Figure 30. Banner placed on the cover of the website of College of Pharmacists of Costa Rica



Los pacientes con zika, chikungunya y dengue pueden ser asintomáticos. El conjunto y la intensidad de signos y síntomas de las tres condiciones son variables.

SIGNOS Y SÍNTOMAS	ZIKA	CHIKUNGUNYA	DENGUE
FIEBRE	Si está presente, usualmente es baja	Casi siempre presente. Alta y de inicio inmediato	Siempre presente. Alta y de inicio inmediato
DOLORES EN LAS ARTICULACIONES	Si están presentes, son leves	Presentes e intensos en la mayoría de los casos	Casi siempre presentes y moderados
SARPULLIDO / MANCHAS ROJAS EN LA PIEL	Casi siempre presentes, usualmente aparecen en las primeras 24h	Pueden presentarse en muchos casos, después del 3er día del inicio de la enfermedad	Pueden estar presentes
PICOR/COMEZÓN/PRURITO	Puede estar presente y ser de leve a grave	Ocurre en casi la mitad de los casos. Pueden ocurrir lesiones con burbujas/ ampollas/ vesículas	Puede estar presente y es leve
ENROJECIMIENTO DE LOS OJOS	Puede estar presente	Puede estar presente	Raro, pero el dolor alrededor de los ojos es muy frecuente
MANIFESTACIONES HEMORRÁGICAS	Ausentes	Poco comunes	Pueden estar presentes
OTRAS MANIFESTACIONES	Dolor de cabeza, dolor muscular y malestar general	Dolor de cabeza, dolor muscular, constipación y dolor del estómago	Dolores de cabeza, detrás de los ojos y musculares intensos

IMPORTANTE

- Para que un mosquito transmita estas enfermedades, debe haberse infectado previamente al picar a una persona enferma.
- Tiende a picar durante el día, siendo su mayor actividad a primera hora de la mañana y al final de la tarde.
- Recuerde no conservar agua en recipientes destapados, tapar tanques, no acumular basura, destapar desagües, y utilizar mosquitos en ventanas y puertas.
- Acuda a su farmacéutico o a un servicio de salud.



Figure 31. Graphic materials created by College of Pharmacists of Costa Rica: Signs and symptoms of zika, chikungunya and dengue

Campaign carried out by private community pharmacies: Out of 1,126 private community pharmacies registered in the ColFar, 923 received the documentation packages, so 82% of these pharmaceutical establishments made the informative-educational materials on diseases caused by dengue, chikungunya and zika available to the community.

It is important to note that each pharmacy was free to implement the informative, preventive, detection and control activities they deemed relevant. For example, the chain of Fischel pharmacies, with 86 pharmaceutical establishments distributed all around the country, focused on prevention actions, promoting the vaccination against dengue and the use of mosquito repellents.

Farmacéuticos Unidos contra el Dengue, Chikunguña y Zika

Queremos que estés bien

Fischel

Acciones

Promocionar la Vacuna contra el Dengue.
Destacar Repelentes en Farmacias.
Comunicación en Punto de Venta y Shopper.
Editorial en el shopper "Vacaciones sin mosquitos".

Queremos que estés bien

Fischel

Presentación a +60 Regentes

Entrega del material del Colegio de Farmacéuticos, 22 marzo 2017

- Paquetes de trípticos a las farmacias, con mayor cantidad en las zonas turísticas
- Material informativo a los regentes

Queremos que estés bien

Fischel

Material Informativo en Farmacias

¡No espere a que le dé dengue, vacúnese ya!

El dengue es una enfermedad viral eliminada por mosquitos zancudos y se transmite por picaduras.

Se evitaba en debidamente así:

Evitar la picadura de mosquitos zancudos. Evitar la picadura de mosquitos zancudos. Evitar la picadura de mosquitos zancudos.

Evitar:

Evitar usar la ropa blanca o clara que atrae a los mosquitos.

Medios de Protección:

La vacunación es una de las medidas más eficaces, para proteger la salud de su familia y la suya.

Para que le vacunen, pregunte por la vacuna.

¡Pregunte en nuestra farmacia y se asegura a que le dé, vacúnese ya!

Queremos que estés bien

Fischel

Figure 32. Actions carried out in the chain of Fischel pharmacies, Costa Rica

In the case of the chain of Sucre pharmacies, with 51 pharmaceutical establishments all around the country, it focused its activities on pharmaceutical information and advice, as it is explained in the following report:

Actions carried out in the chain of Sucre pharmacies

“As requested, the material was successfully distributed through our distribution centres to 51 pharmacies in the chain, [...], to have 100 % of the pharmacies covered.

The material was a great visual help with the specific information and easy to understand for the population of the different areas of the country. This material made it easier to inform and educate about the diseases, their symptomatology, identify the vector Aedes aegypti as the transmitter of the 3 diseases, the time of the day when it bites its hosts, the care and how to fight it according to its life cycle.

The next step was to verify with the most significant pharmacies regarding location and inflow of patients and to see if there was feedback or any extra activity in which the material was used, and we have, for example:

Alonso Villalobos, PhD, from Sucre Avenida Segunda indicates that:

“Due to the inflow of patients in San José centre, many patients were interested in learning how to quickly detect the symptomatology of any of these diseases caused by the mosquito; in addition, they were interested in knowing how to differentiate the symptoms and what to do in one of these cases. The brochure was of great help as I could explain many people about the prevention, detection and control of such disease. The pharmacists can be of great help with a prevention campaign as we see many patients a day.”

In other cases, such as Sucre Upala, Sucre Liberia Centro, Sucre Liberia, Sucre Nicoya, Sucre Puntarenas, Sucre Tarrazú, colleagues tell us that in the area, it was possible to clarify doubts in the consultations about the topic, because patients were very interested in how to fight it, as those are high risk areas and thus joined the campaign.

We faithfully believe that this type of campaign together with the population are of great importance, so it is understood that health is EVERYBODY'S topic.”

Dr. Esteban Cordero González
Jefe de Asuntos Regulatorios Retail



☎ Central: (506) 2519-4222

☎ Directo.: (506) 2519-4343

☎ Fax.: (506) 2519-4394

Figure 33. Report of activities carried out by the chain of Sucre pharmacies (Costa Rica) in the context of the campaign *Pharmacists united against dengue, chikungunya and zika.*

Campaigns developed by the universities: The five universities offering the degree in pharmacy in Costa Rica (one public and four private) received the packages with the documentation drafted by ColFar, so it is considered that 100% of these education centres made the informative-educational material on the diseases caused by dengue, chikungunya and zika viruses available to the students, teachers and the public.

Just like the private community pharmacies, each pharmacy school was free to implement the informative, prevention and educational activities as it deemed appropriate.

For example, the School of Pharmacy of Universidad Internacional de las Américas, from March 27th to 30th, 2017, developed educational talks intended for student communities of schools located in the great metropolitan area, with an estimated coverage of one thousand students.



Figure 34. Educational talks intended for middle school students, carried out by students and teachers of Pharmacy School of Universidad Internacional de las Américas, Costa Rica

The Pharmacy School of the Ibero-American University carried out a campaign which target population was the student, teacher and administrative university community as well as the public in general. The Student Association, the faculty and the Dean's office of the School of Pharmacy and the Marketing Department of the university participated. The activities were carried out in the university campus from March 27th to March 30th, 2017.



Figure 35. Information stand about dengue, chikungunya and zika placed by the students and teachers of the School of Pharmacy of the Ibero-American University, Costa Rica

Communication plan on the participation of the pharmacists in the prevention, detection and control of dengue, chikungunya and zika: The communication plan of the project *Participation of the pharmacists in the prevention, detection and control of dengue, chikungunya and zika* was drafted by the communication and image officers of the College of Pharmacists of Costa Rica and had two target groups, pharmaceutical professionals and the population in general. The communication strategy intended for the population was carried out by Aseprensa Comunicación Estratégica, a company that provides services to this professional corporation. Such company reported that, from March 23th to March 30th, 2017, ten articles were achieved regarding the event, with a coverage of 1,499,300 persons, approximately, 31% of the population living in the national territory.



Figure 36. Report of the results, campaign Pharmacists united against dengue, chikungunya and zika. College of Pharmacists of Costa Rica

Virtual training course on the pharmaceutical approach of the diseases caused by dengue, chikungunya and zika viruses: A self-learning virtual course called, *Pharmaceutical approach on the diseases caused by dengue, chikungunya and zika viruses was designed*, which purpose is to give the Costa Rican pharmacists the tools to allow them to develop interventions intended for the people and the community, aimed at the detection, prevention and control of the diseases caused by dengue, chikungunya and zika viruses. This course is hosted in the virtual campus of ColFar (<http://www.colfar2.com/>) in a Moodle platform.

The course has four sections: dengue, chikungunya, zika and pharmaceutical interventions; it has a 10-week duration; a course load of 30 hours (3 effective hours a week) and gives 60 credits for the pharmaceutical professional recertification system of ColFar.

During 2017, the ColFar carried out two course editions:

- **First edition:** It was carried out from April 17th to June 24th, 2017. 207 pharmacists registered, out of which 94 started (45%), and 66 ended and passed it (70%).
- **Second edition:** it was carried out from September 25th to December 3th, 2017. 185 pharmacists registered, out of which 89 started (48%), and 71 ended and passed it (80%). For this second edition, the ColFar gave the PFA 50 campus so that the pharmacists from their member organizations could attend the educational activity. In the PFA group, only 18 pharmacists registered, and 7 ended and passed the course.



Figure 37. Home page of the self-learning virtual course (<http://www.colfar2.com/>) Pharmaceutical approach of the diseases caused by dengue, chikungunya and zika viruses

4.3.4 Campaign of the College of Chemists, Biochemists and Pharmacists of Pichincha (Ecuador)

The College of Chemists, Biochemists and Pharmacists of Pichincha (C.Q.B.F.P.) in Ecuador carried out activities regarding the campaign as part of the celebrations of two important dates: World Pharmacists Day and World Health Day.

Activity celebrating the World Pharmacist Day: On September 28th, 2016 the C.Q.B.F.P. held a meeting where two conferences were given in relation with the quality of the medications and the good handling practices, at the end of which leaflets on zika, dengue and chikungunya were delivered (information for health professionals), which purpose was to identify before the health authorities and other health professionals, the role of the pharmaceutical chemist and pharmaceutical biochemist as part of the health team and the importance of these professionals as health educators in the prevention of zika, dengue and chikungunya.



Figure 38. Celebrating the World Pharmacist Day: The medication expert talking about the quality and the good use of these products



Figure 39. Sharing information about diseases transmitted by the *Aedes aegypti* mosquito with the Director of Health Surveillance and Control of the Ministry of Public Health and with other participants of the event

Activities on the occasion of the World Health Day: On April 8th, 2017, the C.Q.B.F.P., with the support of the Ecuadorian Network of Pharmaceutical Care, the Ecuadorian Society of Hospital Pharmacy, the School of Chemical Sciences of the Central University of Ecuador and Women's Committee of the C.Q.B.F.P., built a tent in La Carolina Park (Quito) and organized a walk of approximately four kilometres around them. The actions carried out were the determination of the body mass index, recreational activities on the pharmaceutical forms, information about the use of the medication and delivery of the leaflets with information about zika, dengue and chikungunya for pharmaceutical professionals and the public in general. The purpose of the activities was to prove the Ecuadorian population that the pharmacist is the professional who can support them when they need information and advice on medication, as well as their role as educators in public health topics, and those related to prevention and control of arbovirus infections.



Figure 40. Celebrating the World Health Day. Walk around La Carolina Park (Quito, Ecuador)

4.3.5 Campaign of the Association of Chemistry and Pharmacy of Uruguay

Uruguay reports an epidemic situation very different from the rest of the countries of the Americas. After the autochthonous dengue cases confirmed in 2016, the disease has been absent in the Uruguayan population until the time of the report. No imported or autochthonous cases were detected of any of the diseases associated to the *Aedes aegypti* mosquito. Although the mosquito density in the warmer months was high (including *Aedes*), there were no new cases in 2017. The Ministry of Public Health carried out an informative campaign about the measures to avoid the proliferation and the bites of mosquitos during the summer months. It is reported that the application of the spatial spraying protocol of streets was not necessary as there was no confirmation of infected mosquitos.

In that context, the Association of Chemistry and Pharmacy of Uruguay implemented the following actions:

- Presentation to the Ministry of Public Health authorities of the materials created by the Pharmaceutical Forum of the Americas.
- Presentation to the authorities of the governmental Health Services Administration of the materials produced by the Forum.
- Dissemination of a press release of the Ministry of Public Health in the journal N°74 of August 2016 of the Association of Chemistry and Pharmacy of Uruguay, about the transmission, symptoms and prevention of dengue.

Specific goal 5: Preparation and publication of the technical documents

With this purpose, the production of two technical documents was considered: one identifying and describing the compounding formulations of mosquito repellents that pharmacists can prepare, and the other identifying and describing the activities that pharmacists can carry out in a fight program to prevent and control the infectious diseases caused by dengue, chikungunya and zika viruses.

Regarding the technical document on the compounding preparation of repellents, the Executive Committee of the PFA took the decision not to produce it, so the College of Pharmacists of the Province of Buenos Aires (Argentina), in the publication Update Guide on Dengue, issued on the occasion of the 2011-2012 campaign: *Those who take the mosquito away from you, protect you against dengue*, has a section of dengue official formulations in which the summarized formulation techniques are included for the following preparations:

- Citronella (1.5%, 3%, 5%) cream and lotion
- N-N-diethyl toluamide (up to 25% w/w) lotion and gel
- Permethrin 0.5% solution (superficial repellent)

The complete guide can be consulted in the following link:

<http://www.colfarma.org.ar/Cient%C3%ADfica/Documentos%20compartidos/Guia%20de%20Actualizaci%C3%B3n%20en%20Dengue.pdf>

The preparation of the technical document which identifies and describes the activities the healthcare pharmacists can carry out in the context of a public health campaign related to the prevention and control of the diseases transmitted by *Aedes aegypti* mosquito was requested by Cristina Fernández Barrantes, PhD., Coordinator of the Centre of Medication Information of the Pharmacy Service of San Juan de Dios Hospital (Costa Rica) and former research fellow of FIP-PFA. The work on the document began in August 2017, the version for review was available in October 2017; it was subject to study by four external reviewers in January 2018 and currently the author is processing the observations and recommendations issued. It is estimated that by the end of May 2018 the electronic publication of the document will be ready.

Specific goal 6: Training on prevention, detection and control of arbovirus infection intended for pharmacists

The training plan intended mainly for healthcare pharmacists has two activities:

- Celebration of three conferences using the FIP GoToWebinar platform.
- Execution of a self-learning virtual course.

Conferences using the GoToWebinar platform: The following conferences were scheduled:

1. Dengue approach and prevention. Dengue vaccine: Given on March 9th (in Spanish) and on March 16th (in English), 2018, by Victoria Hall Ramírez, PhD, Director of the National Centre of Medication Information of the Pharmaceutical Investigations Institute of the School of Pharmacy of the University of Costa Rica.

Webinar of the Pharmaceutical Forum of the Americas
Dengue approach and prevention. Dengue vaccine.

SPANISH SESSION: March 9th, 2018 9:00 AM to 10:00 AM CST (verify the time in your country)

Register in: <https://attendee.gotowebinar.com/register/839718309573154818>

Note: After registration, you will receive a confirmation email with information on how to join the webinar.

Dengue approach and prevention. Dengue vaccine

Objectives:

- Acknowledge the role of the pharmacist as part of the multidisciplinary health team in the detection, prevention and care of dengue.
- Apply the technical and scientific criteria in providing services of pharmaceutical care for the approach and prevention of dengue.

Contents:

1. General considerations of the disease, its approach and treatment.
2. Hygiene measures and general prevention.
3. Dengue vaccine
 - a) Application diagram.
 - b) Dosage form.
 - c) Conservation and storage.
 - d) Use in special populations.
 - e) Effectiveness and safety studies.

Expositor: Victoria Hall Ramírez, PhD (Costa Rica)

Director of the National Centre of Medication Information (Centro Nacional de Información de Medicamentos, CIMED) of the Pharmaceutical Investigations Institute of the School of Pharmacy of the University of Costa Rica.

After registration, you will receive a confirmation email with information on how to join the webinar.

Brought to you by GoToWebinar®

Webinars Made Easy®

Figure 41. Invitation for the pharmacists to participate in the Webinar session in Spanish: Dengue approach and prevention. Dengue vaccine

2. Participation of the pharmacist in the detection, control and prevention of arbovirus infections from the community pharmacy: Scheduled in Spanish and English in the last week of May and the first week of June 2018, by Cristina Fernández Barrantes, PhD, Coordinator of the Centre of Medication Information of the Pharmacy Service of San Juan de Dios Hospital (Costa Rica).

3. Approach and prevention of the Yellow fever. Yellow fever vaccine: Scheduled in Spanish and English in last two weeks of August 2018, by Catalina Lizano Barrantes, PhD, Professor of the School of Pharmacy of the University of Costa Rica.

Self-learning virtual course: Having the experience developed by the ColFar as reference, the PFA requested that professional organization for the curriculum design, the organization and the administration of a self-learning virtual course *Pharmaceutical approach of the diseases caused by dengue, chikungunya and zika viruses, intended for pharmacists of the Americas*.

The course will be of use and will have five thematic areas:

Section	Duration (in weeks)	Course load (in hours)
Section 1: Dengue	04	12
Section 2: Chikungunya	01	03
Section 3: Zika	03	09
Section 4: Yellow fever	02	06
Section 5: Pharmaceutical interventions	02	06
Total	12	36

The first edition of the course is scheduled to be executed in the months of September, October and November 2018.

VI. CONCLUSIONS

As indicated by the Pan American Health Organization at different times, the private or public community pharmacies are health care facilities and the community pharmacists are the most available professionals for the population. With a significant frequency, these pharmaceutical establishments are the first, and in many cases, the only contact with the user of the health system, and they constitute a space representing an opportunity to attract and take timely actions with a significant number of persons, particularly in the area of prevention and promotion of health, as well as in self-care situations, and is often the closest health service with great time availability for the public.

Besides the search for treatment, the population goes to consult on topics related to their health or that of a family member, which represents an opportunity to know, interact and take action in the health conditions of the family and their environment, raising awareness on the population about the health risks, promoting healthy life styles and preventing problems in vulnerable groups. They can also develop activities of rehabilitative and palliative care, support of self-care, follow-up of disease episodes or health conditions, controlling early warning indicators and supporting the continuity of the treatment and the care in the long term without interruption, thus contributing to an integral, integrated and continuous care.

In this opportunity, the pharmaceutical organizations of the Americas Region, allied with the health authorities, other professional organizations and universities, developed a multitude of activities related to the prevention, detection, care and control of the diseases caused by dengue, chikungunya and zika viruses, which progress has become a threat for the inhabitants of the countries of the Americas.

From the professional organizations or from the community pharmacies, actions at the national, regional, departmental, provincial or local level were carried out, where pharmacists and pharmacy students, from their establishments or out of them, in the school, work and community setting and using the social media they could access to, implemented informative and educational campaigns intended for the population, with the purpose of raising awareness and knowledge on the dangers involving the diseases caused by arboviruses, as well as the measures that can, individually or jointly, be implemented to achieve their effective control and prevention.

Additionally, with the project execution, the experiences developed by the pharmaceutical organizations of different countries could be shared, who under the motto of *Pharmacists united against dengue, chikungunya and zika* and with a unique visual identity, joined forces to face a public health problem, which allowed to show the important actions pharmacists can have in the search and implementation of health actions for the purpose of facing the social determinants conditioning the health of people and the community.

A cornerstone of the project was to give the pharmaceutical professionals tools which allowed them to increase their knowledge on arbovirus infections, as well as on the prevention and control measures, which produced an improvement in the professional performance and an increase in their response capacity to face public health problems in their communities.

Finally, from the project execution, it became clear how the implementation of health promotion and disease prevention activities by community pharmacies and national pharmaceutical organizations can contribute to improving public health in the Americas' region.

VII. BIBLIOGRAPHY

Arranz Izquierdo, Javier; Pérez Escamilla, Fernando y Linares Rufo, Manuel. Guía de manejo en Atención Primaria de pacientes con Dengue, Chikungunya y Zika. Madrid: Sociedad Española de Medicina de Familia y Comunitaria, Sociedad Española de Médicos Generales y de Familia, Sociedad Española de Médicos de Atención Primaria, Centro de Coordinación de Alertas y Emergencias Sanitarias del Ministerio de Sanidad, Servicios Sociales e Igualdad del Gobierno de España, marzo 2016.

Recuperado de:

https://www.msssi.gob.es/profesionales/saludPublica/ccayes/alertasActual/DocsZika/ETV3_Guia_manejo_Atencion Primaria_Marzo2016.pdf

Asociación de Química y Farmacia del Uruguay. Informe de actividades ejecutadas en el marco de la campaña Farmacéuticos Unidos contra el Dengue, Chikungunya y Zika, 2017.

Confederación Farmacéutica Argentina. Informe de actividades ejecutadas en el marco de la campaña Farmacéuticos Unidos contra el Dengue, Chikungunya y Zika, 2017.

Confederación Farmacéutica Argentina. Informe de actividades ejecutadas en el marco de la campaña Farmacéuticos Unidos contra el Dengue, Chikungunya y Zika por el Colegio de Farmacéuticos de la Provincia de Buenos Aires, 2017.

Confederación Farmacéutica Argentina. Informe de actividades ejecutadas en el marco de la campaña Farmacéuticos Unidos contra el Dengue, Chikungunya y Zika por el Colegio de Farmacéuticos de la Provincia del Chaco, 2017.

Confederación Farmacéutica Argentina. Informe de actividades ejecutadas en el marco de la campaña Farmacéuticos Unidos contra el Dengue, Chikungunya y Zika por el Colegio de Farmacéuticos de la Provincia de Entre Ríos, 2017.

Colegio de Farmacéuticos de Costa Rica. Diseño curricular del curso virtual de autoaprendizaje: Abordaje farmacéutico de las enfermedades causadas por los virus del dengue, chikungunya y zika, abril de 2017.

Colegio de Farmacéuticos de Costa Rica. Informe final de ejecución del proyecto nacional Funciones y actividades del farmacéutico en la prevención, detección y control de las enfermedades

causadas por los virus del dengue, chikungunya y zika, en el marco de la campaña Farmacéuticos Unidos contra el Dengue, Chikungunya y Zika, 2017.

Colegio de Farmacéuticos de la Provincia de Buenos Aires (Argentina). Campaña: Quien te quita el Mosquito, te cuida del Dengue, 2011-2012.

Colegio de Farmacéuticos de la Provincia de Buenos Aires (Argentina). Guía de Actualización en Dengue. Campaña 2011-2012: Quien te quita el Mosquito, te cuida del Dengue.

Colegio de Farmacéuticos de la Provincia de Buenos Aires (Argentina). Campaña: Chikunguña para la población, 2014.

Colegio de Químicos, Bioquímicos y Farmacéuticos de Pichincha (Ecuador). Informe de actividades ejecutadas en el marco de la campaña Farmacéuticos Unidos contra el Dengue, Chikungunya y Zika, 2017.

Consejo Federal de Farmacia de Brasil. Campaña Permanente Farmacéuticos en Acción: Todos contra el Aedes aegypti, 2016.

Consejo Federal de Farmacia de Brasil. Informe de actividades ejecutadas en el marco de la campaña Farmacéuticos Unidos contra el Dengue, Chikungunya y Zika, 2017.

Federación Internacional Farmacéutica y Organización Mundial de la Salud. Directrices conjuntas FIP/OMS sobre Buenas Prácticas en Farmacia: Estándares para la calidad de los servicios farmacéuticos. La Haya: Federación Internacional Farmacéutica, 2011.

Fernández Barrantes, Cristina. Documento técnico para la prevención, detección y control de las arbovirosis desde las farmacias. Versión borrador en proceso de revisión, octubre 2017.

Foro Farmacéutico de las Américas. Material para la campaña Farmacéuticos Unidos contra el Dengue, Chikungunya y Zika. Folleto dirigido a los farmacéuticos: Zika, chikungunya y dengue. ¡Farmacéutico infórmese como recibir, evaluar y cuidar!, 2016.

Foro Farmacéutico de las Américas. Material para la campaña Farmacéuticos Unidos contra el Dengue, Chikungunya y Zika. Folleto dirigido a la población: Zika, chikungunya y dengue. ¡Infórmese!, 2016.

Foro Farmacéutico de las Américas. Webinar Abordaje y prevención del dengue. Vacuna contra el dengue. Material de información y divulgación, febrero 2018.

Frade Pena Quintao, Josélia Cintya. Bitácora de avance de ejecución del proyecto. Documento borrador, [s.f.].

Frade Pena Quintao, Josélia Cintya. Relatório Arboviroses. Mobilização Internacional. Farmacêuticos em ação: todos contra o Aedes aegypt, Julho, 2017 (Documento borrador).

Frade Pena Quintao, Josélia Cintya. Relatoría de Ejecución del Proyecto de Arbovirosis, versión 1. Presentación Power Point, 2017.

Frade Pena Quintao, Josélia Cintya. Relatoría de Ejecución del Proyecto de Arbovirosis, versión 2. Presentación Power Point, 2017.

Frade Pena Quintao, Josélia Cintya. Informe de actividades de la Dirección de Práctica Farmacéutica presentado en la Asamblea General del Foro Farmacéutico de las Américas celebrada en Lima, Perú, el 28 de octubre de 2017. Presentación Power Point, 2017.

Ministerio de Salud de la Provincia de Buenos Aires y Fondo de las Naciones Unidas para la Infancia. Participación social en la prevención del dengue, zika y chikungunya. Adaptación de la guía para el promotor. Buenos Aires: Unicef Argentina, abril 2016. Recuperado de: https://www.unicef.org/argentina/spanish/salud_MANUAL_DENGUE_A5-Version2016_web.pdf

Organización Panamericana de la Salud. Servicios farmacéuticos basados en la atención primaria de salud. Documento de posición de la OPS/OMS. Washington, DC; 2013. Recuperado de: http://www.paho.org/hq/index.php?option=com_docman&task=doc_view&gid=21582&Itemid=270&lang=en

Organización Panamericana de la Salud. Instrumento para el diagnóstico y la atención a pacientes con sospecha de arbovirosis. Washington, D.C.: OPS; 2016. Recuperado de: http://iris.paho.org/xmlui/bitstream/handle/123456789/31448/9789275319369_spa.pdf?sequence=5&isAllowed=y

VIII. ANNEXES

Annex 1. Brochure intended for pharmacists: zika, chikungunya and dengue. Pharmacists, learn how to receive, evaluate and care!

Annex 2. Brochure intended for the population: zika, chikungunya and dengue. Inform yourself!

Annex 3. Poster about dengue, chikungunya and zika, and its effects on the pregnant woman.



ANNEX 1

Brochure intended for pharmacists: zika, chikungunya and dengue.
Pharmacists, learn how to receive, evaluate and care!



ZIKA CHIKUNGUNYA DENGUE

¡FARMACÉUTICO, INFÓRMESE COMO RECIBIR,
EVALUAR Y CUIDAR!

Latinoamérica enfrenta una epidemia de zika, chikungunya y dengue, infecciones virales transmitidas por mosquitos/zancudos del género Aedes, principalmente el Aedes aegypti

EL FARMACÉUTICO DEBE:

- orientar a la población sobre la prevención y el control de esas enfermedades
- identificar signos y síntomas sospechosos, y derivar a las personas a los servicios de salud para evaluación diagnóstica
- indicar, cuando sea pertinente, terapias adecuadas para el alivio de signos y síntomas (medicamentos de venta libre)
- acompañar a sus pacientes con diagnóstico y en tratamiento para ver si se logran los objetivos terapéuticos

MEDIDAS PREVENTIVAS

Usar mosquiteros o mallas en las ventanas y puertas

Usar mosquiteros en cunas, sillas y cochecitos de bebé

Usar pantalones y camisas de manga larga; utilizar repelentes con eficacia comprobada para repeler el mosquito/zancudo. Algunos productos tienen restricciones de uso en los niños. Lea las instrucciones de uso

¡Atención!

Los insecticidas deben ser utilizados con cautela. Aconseje al paciente a reducir su uso y a no aplicarlos sobre alimentos, personas y plantas. Informe también que, durante la aplicación, es necesario que las personas y animales domésticos se alejen del lugar, y el ambiente debe ser aireado. En caso de ingestión accidental, oriente a no provocar vómito y a buscar una emergencia hospitalaria, llevando el embalaje/envase del producto.

Las medidas preventivas son FUNDAMENTALES para interrumpir la cadena transmisión de la enfermedad y se aplican a todas las personas, principalmente a aquellas con signos y síntomas de infección debido al riesgo de transmitir estas enfermedades.

EVALUACIÓN DEL PACIENTE

Pacientes con zika, chikungunya y dengue pueden ser asintomáticos. El conjunto y la intensidad de signos y síntomas de las tres condiciones son variables.

Signos/síntomas	Zika
Manifestaciones cardinales (caracterizan la enfermedad)	Rash cutáneo, con prurito y por lo menos dos de los siguientes signos/síntomas: fiebre, conjuntivitis sin secreción y sin prurito o hiperemia conjuntival, poli artralgia o edema peri articular ^{2,3}
Fiebre	Baja ^{2,3}
Artralgia (dolor articular)	Leve ^{2,3}
Rash cutáneo (manchas rojas en la piel)	Frecuente, con surgimiento en las primeras 24h ^{2,3}
Prurito	Leve a intenso ^{2,3}
Conjuntivitis	Frecuente ^{2,3}
Manifestaciones hemorrágicas	Ausentes ^{2,3}
Manifestaciones graves	Artritis ^{2,3}
Otras manifestaciones	Cefalea, mialgia, manifestaciones gastrointestinales y malestar ^{2,3}
Alteraciones de resultados del laboratorio clínico	Leucopenia, trombocitopenia y ligera elevación de la deshidrogenasa láctica sérica (DHL), GGT y de marcadores de actividad inflamatoria y de PCR, fibrinógeno y ferritina ³

Otros aspectos a considerar son las características individuales y la morbilidad asociada a cada caso.

Chikungunya	Dengue
Dolor articular intenso y edema, frecuentemente incapacitante (manos, pies o cadera) ⁴ . El dolor articular puede persistir por período prolongado ⁵	Cefalea, dolor retro-orbitario y dolor muscular acentuado ⁶⁻¹⁰
Alta y de inicio inmediato, con duración de 3-5 días ¹¹⁻¹⁵	Alta y de inicio inmediato, con duración de 5-7 días ¹⁰ , seguida por fatiga intensa, que puede durar algunas semanas ⁹
Intensa en múltiples articulaciones ¹¹⁻¹⁴	Moderada ⁹
Frecuente ^{13,14}	Poco frecuente ⁹
Frecuente ⁴	Leve ⁹
Frecuente ⁵	Poco frecuente ⁹
Poco frecuentes ⁵	En el dengue hemorrágico, petequias y sangramientos/sangrados (hematemesis, epistaxis, menorragia y melena) ⁹
Falla respiratoria o renal, disfunción cardíaca, miocarditis, hepatitis, pérdida auditiva, alteraciones neurológicas y oculares ⁵	Alteraciones hepáticas, señales de disfunciones neurológicas o cardíacas
Cefalea, mialgia (leve a moderada) y alteraciones gastrointestinales ⁵	Náuseas, vómitos, diarrea, tos, dolor de garganta y congestión nasal
Linfopenia y trombocitopenia. Enzimas hepáticas elevadas ¹⁶	Leucopenia ^{7,17} , trombocitopenia ^{10,17,18} . Enzimas hepáticas elevadas ⁹

SITUACIONES DE ALERTA

Cualquier persona con sospecha de zika, chikungunya o dengue debe ser referida al servicio de salud para evaluación diagnóstica. Algunos grupos de pacientes están expuestos a mayor riesgo de complicaciones y requieren referencia INMEDIATA para cuidado especializado. Son ellos:



Embarazadas;



Niños menores
de 2 años;



Adulto mayor con múltiples enfermedades, polifarmacia y demencia o limitaciones de movimiento. Para saber más, consulte el enlace goo.gl/FF0pEv.

Pacientes con:

signos y síntomas graves

petequias y sangramientos/sangrados (hematemesis, epistaxis, menorragia y melena)

comorbilidades graves

alteraciones neurológicas

lesiones cutáneas purulentas o con aspecto de infección



Vea un modelo de informe al médico o servicio de salud: migre.me/u5ObM

CONDUCTAS TERAPÉUTICAS

A pesar de la necesidad de diagnóstico con propósitos epidemiológicos, el tratamiento es primordialmente sintomático. A continuación algunas recomendaciones:

- **cefalea, artralgia, mialgia y fiebre:** recomendar el uso de paracetamol o dipirona. Debido al riesgo de hemorragia, evitar salicilatos, anti-inflamatorios no-esteroides (AINEs) y corticosteroides. Cuidar de la hidratación del paciente en caso de fiebre.
- **prurito:** recomendar evitar a rascarse o herirse, evitar contacto directo de las uñas con las lesiones, además evitar baños calientes o prolongados, garantizar la hidratación de la piel;
- **conjuntivitis:** utilizar lágrima artificial en forma de colirio o pomada oftálmica. Indicar asociaciones que contienen solo componentes lubricantes.

Para que el paciente pueda cumplir correctamente las conductas seleccionadas, el farmacéutico debe dar todas las orientaciones de manera adecuada y si es necesario, por escrito.

¡ATENCIÓN!

Otras condiciones, como rubéola y sarampión, pueden presentar manifestaciones clínicas semejantes a las abordadas en este folleto. Investigue si el paciente tubo contacto con personas con esas enfermedades.

Toda atención debe ser registrado de acuerdo con la reglamentación de cada país.

Para orientarse mejor, consulte referencias ya publicadas sobre el tema, reunidas en la biblioteca virtual del sitio del Conselho Federal de Farmácia (CFF) del Brasil. Vea el enlace: migre.me/u5NGi

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REFERENCIAS

1. Breisch NL. Prevention of arthropod and insect bites: Repellents and other measures. UpToDate. 2016. www.uptodate.com. Accessed January 21, 2016.
2. aas A, Sexton DJ. Diseases potentially acquired by travel to Latin America and the Caribbean. UpToDate. www.uptodate.com.
3. Dengue, Chikungunya e Zika: profissionais e gestores. <http://combateaedes.saude.gov.br/profissional-e-gestor/orientacoes/77-profissionais-e-gestores>. Accessed January 27, 2016.
4. Wilson ME. Chikungunya fever. UpToDate. 2015. www.uptodate.com.
5. Azevedo R do S da S, Oliveira CS, Vasconcelos PF da C. Chikungunya risk for Brazil. *Rev saúde pública*. 2015;49:58. doi:10.1590/S0034-8910.2015049006219.
6. Sharp TW, Wallace MR, Hayes CG, et al. Dengue fever in U.S. troops during Operation Restore Hope, Somalia, 1992-1993. *Am J Trop Med Hyg*. 1995;53(1):89-94. <http://www.ncbi.nlm.nih.gov/pubmed/7625541>. Accessed January 21, 2016.
7. Trofa AF, DeFraités RF, Smoak BL, et al. Dengue fever in US military personnel in Haiti. *JAMA*. 1997;277(19):1546-1548. <http://www.ncbi.nlm.nih.gov/pubmed/9153369>. Accessed January 21, 2016.
8. Shirtcliffe P, Cameron E, Nicholson KG, Wiselka MJ. Don't forget dengue! Clinical features of dengue fever in returning travellers. *J R Coll Physicians Lond*. 32(3):235-237. <http://www.ncbi.nlm.nih.gov/pubmed/9670150>. Accessed January 21, 2016.
9. Rothman AL, Srikiatkhachorn A, Kalayanarooj S. Clinical manifestations and diagnosis of dengue virus infection. UpToDate. 2015. www.uptodate.com.

10. Schwartz E, Mendelson E, Sidi Y. Dengue fever among travelers. *Am J Med.* 1996;101(5):516-520. <http://www.ncbi.nlm.nih.gov/pubmed/8948275>. Accessed January 21, 2016.
11. Bordi L, Carletti F, Castilletti C, et al. Presence of the A226V mutation in autochthonous and imported Italian chikungunya virus strains. *Clin Infect Dis.* 2008;47(3):428-429. doi:10.1086/589925.
12. Parola P, de Lamballerie X, Jourdan J, et al. Novel chikungunya virus variant in travelers returning from Indian Ocean islands. *Emerg Infect Dis.* 2006;12(10):1493-1499. doi:10.3201/eid1210.060610.
13. Lakshmi V, Neeraja M, Subbalaxmi MVS, et al. Clinical features and molecular diagnosis of Chikungunya fever from South India. *Clin Infect Dis.* 2008;46(9):1436-1442. doi:10.1086/529444.
14. Burt FJ, Rolph MS, Rulli NE, Mahalingam S, Heise MT. Chikungunya: a re-emerging virus. *Lancet (London, England).* 2012;379(9816):662-671. doi:10.1016/S0140-6736(11)60281-X.
15. Saúde encomendará 500 mil testes para zika, chikungunya e dengue. Ministério da Saúde. 2016. <http://portalsaude.saude.gov.br/index.php/cidadao/principal/agencia-saude/21783-saude-encomendara-500-mil-testes-para-zika-chikungunya-e-dengue>. Accessed January 27, 2016.
16. Hochedez P, Jaureguiberry S, Debruyne M, et al. Chikungunya infection in travelers. *Emerg Infect Dis.* 2006;12(10):1565-1567. doi:10.3201/eid1210.060495.
17. Kalayanarooj S, Vaughn DW, Nimmannitya S, et al. Early clinical and laboratory indicators of acute dengue illness. *J Infect Dis.* 1997;176(2):313-321. <http://www.ncbi.nlm.nih.gov/pubmed/9237695>. Accessed December 29, 2015.
18. Halstead SB. Dengue. *Lancet (London, England).* 2007;370(9599):1644-1652. doi:10.1016/S0140-6736(07)61687-0.

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ANNEX 2

Brochure intended for the population: zika, chikungunya and dengue.
Inform yourself!

¡CIUDADANO, HAGA SU PARTE!

Medidas preventivas son FUNDAMENTALES para interrumpir la cadena transmisión de la enfermedad y se aplican a todas las personas, principalmente a aquellas con signos y síntomas de infección debido al riesgo de transmitir estas enfermedades. El *Aedes aegypti* se reproduce en agua estancada, demora cerca de diez días para alcanzar la fase adulta. Evite la acumulación de agua. ¡No lo deje nacer!



Mantenga los reservorios de agua tapados



Si usa recipientes para guardar agua, lávelos semanalmente



Llene con arena los platillos de los maceteros de plantas



Guarde la basura en bolsas plásticas y mantenga las papeleras cerradas



Guarde botellas vacías con la boca para bajo

¡Si tiene dudas, acuda a su farmacéutico!



Con el apoyo de:



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Proyecto apoyado por la Federación Internacional Farmacéutica y la Fundación FIP para Educación y la Investigación

**ZIKA
CHIKUNGUNYA
DENGUE**

¡Infórmese!

EL PROBLEMA

La región latinoamericana enfrenta una epidemia de zika, chikungunya y dengue, infecciones virales transmitidas por el *Aedes aegypti*. Infórmese sobre los signos y los síntomas que pueden caracterizar estas enfermedades y sus medidas preventivas.

CUADRO DE SIGNOS/SÍNTOMAS			
Signos/síntomas	Zika	Chikungunya	Dengue
Fiebre	Si está presente, usualmente es baja	Casi siempre presente. Alta y de inicio inmediato	Siempre presente. Alta y de inicio inmediato
Dolores en las articulaciones	Si están presentes, son leves	Presentes e intensos en la mayoría de los casos	Casi siempre presentes y moderados
Sarpullido/manchas rojas en la piel	Casi siempre presentes, usualmente aparecen en las primeras 24h	Pueden presentarse en muchos casos, después del 3° día del inicio de la enfermedad	Pueden estar presentes
Picor/comezón/prurito	Puede estar presente y ser de leve a grave	Ocurre en casi la mitad de los casos. Pueden ocurrir lesiones con burbujas/ampollas/vesículas	Puede estar presente y es leve
Enrojecimiento de los ojos	Puede estar presente	Puede estar presente	Raro, pero el dolor alrededor de los ojos es muy frecuente
Manifestaciones hemorrágicas	Ausentes	Poco comunes	Pueden estar presentes
Otras manifestaciones	Dolor de cabeza, dolor muscular y malestar general	Dolor de cabeza, dolor muscular, constipación y dolor del estómago	Dolores de cabeza, detrás de los ojos y musculares intensos

SITUACIONES DE ALERTA

Todas las personas con signos y síntomas deben ser derivadas al servicio de salud para evaluación diagnóstica en los primeros cinco días de la aparición de las manifestaciones. Algunos grupos de pacientes pueden requerir un cuidado especializado más rápido, tales como:

Pacientes con:

- signos y síntomas graves como consecuencia de la infección (dificultad respiratoria, problemas en el corazón, hepatitis, pérdida auditiva, reducción de la sensibilidad de manos y pies, alteraciones visuales o de comportamiento)
- moretones/hematomas en la piel o pérdida de sangre inexplicados (de encía y/o de nariz), sangre en las heces, en el vómito, o aumento de la menstruación
- enfermedades en el hígado, corazón, riñones o defensas bajas
- heridas en la piel con pus o con olor desagradable



Embarazadas



Niños menores de 2 años



Adulto mayor con múltiples enfermedades, en uso de cinco o más medicamentos y con demencias o limitaciones de movimiento

SUGERENCIAS PARA LA PREVENCIÓN

Se recomienda el uso de barreras de protección en ambientes donde hay mosquitos/zancudos y el uso de repelentes. Vea las sugerencias de protección contra el mosquito/zancudo:

- instale mosquiteros o mallas en las ventanas y puertas
- proteja cunas, sillas y cochecitos de bebé con mosquiteros
- use pantalones y camisas de manga larga
- utilice repelentes que alejen al mosquito/zancudo. Recuerde seguir las instrucciones de uso del fabricante y observe el tipo de formulación (adulto o infantil). Repelentes infantiles NO deben ser utilizados en adultos, pues la duración de la acción es menor. Observe el tiempo de acción de los productos. Ninguno protege durante todo el día. Repelentes naturales pueden ser útiles. Busque informaciones sobre su uso

¿QUÉ PUEDO HACER PARA TRATARME?

No existen tratamientos específicos para curar estas infecciones. Es posible aliviar los signos/síntomas.

Evite la automedicación. Algunos medicamentos pueden enmascarar signos/síntomas importantes y empeorar la evolución de las enfermedades zika, chikungunya y dengue, además del agravamiento de otras enfermedades ya existentes.

¡Acuda a su farmacéutico o a un servicio de salud!

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Traducido por la coordinación de la Red CIMLAC, con la colaboración del médico Carlos Fuentes, de AIS/Nicaragua.

A faint, light blue world map is visible in the background of the page. The map shows the continents of North America, South America, Europe, and Africa. The page has a light blue background with a decorative orange and blue wave-like shape at the bottom.

ANNEX 3

Poster about dengue, chikungunya and zika, and its effects on the pregnant woman



DENGUE, CHIKUNGUNYA Y ZIKA

El mosquito **Aedes aegypti** que transmite dengue, chikungunya y zika sólo necesita agua quieta y un poco de sombra para dejar sus huevos y reproducirse

VACÍ O TIRÁ CUALQUIER RECIPIENTE CON AGUA POR MÁS MÍNIMA QUE SEA

Botellas, latas, macetas vacías, cubiertas, tanques de agua sin tapa, bebederos de animales, bandejas debajo de las macetas, floreros, incluso tapitas de gaseosa.

SI TENÉS ESTOS SÍNTOMAS CONSULTÁ CON TU MÉDICO

Vómitos
Dolor abdominal
Fiebre
Dolor muscular o en Articulaciones
Dolor de cabeza o detrás de los ojos
Sarpullido

**EL ZIKA PUEDE
TRANSMITIRSE
POR EL HOMBRE
EN LAS RELACIONES
SEXUALES**

**EL ZIKA PUEDE
TRANSMITIRSE
AL FETO DURANTE
EL EMBARAZO
O EN EL PARTO**



