interface
comunicação, saúde, educação
https://www.interface.org.br
eISSN 1807-5762

Articles

Communicating on *Zika*: prevention recommendations in contexts of uncertainties

Raphaela Rezende Nogueira Rodrigues[(a)]
<raphaela.rnogueira@gmail.com>

Márcia Grisotti[(b)]
<marcia.grisotti@ufsc.br>

[(a)] Faculdade de Pato Branco. Rua Benjamin Borges dos Santos, 1100, bairro Fraron. Pato Branco, PR, Brasil. 85503-350.
[(b)] Departamento de Sociologia e Ciência Política, Universidade Federal de Santa Catarina. Florianópolis, SC, Brasil.

The *Zika* virus epidemic, which was treated as a national and international public health emergency during a specific period, gave rise to unusual measures, which claims for a more detailed analysis, especially the recommendations given by the Brazilian Ministry of Health in the website "Combate *Aedes*". In this work, we analyze those recommendations employing the Collective Mindsets Analysis method. The recommendations targeted at health professionals and general public fail due to not clarifying the characteristics of the most vulnerable population, compromising its applicability. The recommendations also fail to make clear who is responsible for many recommended actions, leaving to the public the responsibility of decision making. Without a proper attention for the reality of the affected public, there is a risk of making public policies ineffective.

Keywords: *Zika* virus. Public policies. Epidemics. Prevention and control. Reproductive rights.

Introduction

The recognition of the provisional character of scientific 'truths' has been established in the academic sphere at least since the work of Popper[1]. Hypotheses and theories are subject to reformulations, and the uncertainties, ambivalences and controversies are part of the context of the production of scientific knowledge. In this respect, Friedman, Dunwoody and Rogers[2] suggest that scientific expertise should be defined not so much in terms of accumulation of knowledge but rather in the ability to recognize and manage risks.

However, if in the scientific world, knowledge is admittedly provisional and refutable, and mainly elastic in relation to the time of its production and legitimation, the same cannot be said for the world of decision makers in public policies. Administrators need to implement immediate responses, usually made based on choices that may not even be consensual among scientists. And, in addition to implementing public policies, administrators need to communicate with the target audience of such policies. Through the analysis of the meanings of fear in the coverage of H1N1 influenza in the Rio de Janeiro newspapers, Lerner and Gradella[3] identified the ambiguous relationship of public power, where fear sometimes served as a justification for the authorities' action, or was a source of insecurity and disqualification. In this context, Funtowicz and Ravetz[4] emphasize the need to construct possible strategies for solving complex problems in scenarios where the facts are uncertain, values are in dispute, risks are high and decisions are urgent.

Uncertainties and risks are inevitable aspects of our lives, but the translation of scientific uncertainties into the process of health communication in epidemic and health risk contexts is a subject that is little explored in Brazilian literature. There are more questions than answers when talking about the virus that has circulated in several countries. Discovered in 1947 in a forest in Uganda[5], the Zika virus gained notoriety when it was related to microcephaly in infants in 2015. The knowledge produced until now points out that the Zika virus is not only directly transmitted by the mosquito Aedes aegypti - which also transmits diseases such as dengue among others - but also by sex[6,7].

Initially considered a "soft dengue", in 2015 the Zika epidemic became a source of fear by a part of the population, being considered by the Ministry of Health as a National Public Health Emergency and by the World Health Organization as an International Public Health Emergency. Both statuses were suspended, the first in May 2017 and the second in November 2016.

A number of articles have been published on the clinical and epidemiological aspects, the majority pointing to the complexity and uncertainties surrounding Zika's congenital syndrome. Freitas et al.[8] carried out a review of the literature on articles published after the national public health emergency declaration, concluding that the growth in the number of publications is related to the high index of op-eds and case studies; that there is a centrality in the efforts linked to the epidemiological and environmental control of the outbreak, to the detriment of the analysis of the social determination of the disease; and the articles mention the uncertainties and the need for further studies on prevention and control measures. In relation to the social aspects of the epidemic, it is worth mentioning the work of Diniz[9], which problematizes the deepening inequalities and injustices existing in the daily life of women affected by the

Zika virus; Galli and Deslandes[10], analyze the bills that aim to tighten the punishment for abortion in case of microcephaly; Ventura and Camargo[11], revive the debate on the right to have a voluntary abortion in the context of the Zika virus and there is also work on abortion realized by Löwy[12], Aiken[13].

Toppenberg-Pejcic[14] analyzes the use of expert-produced materials on the Ebola, Zika, and Yellow Fever epidemics, published in a simplified and non-academic way on blogs and website (called 'gray' literature), highlighting the role of this information dissemination medium and its impact on the communication of risks. Ribeiro et al.[15], through the analysis of 186 articles published in the newspapers O Globo and Folha de São Paulo between 2015-2016, show that this media coverage reveals a scenario of "war" sustained by two aspects: the struggle for the eradication of the mosquito (enemy to be fought) and the struggle to control microcephaly, putting the weight of prevention and responsibility on women.

Considering the role of the Ministry of Health in the process of communication in health, in this article we analyze the recommendations for health professionals and the population published in the site "Aedes Combat" on the virus Zika, as well as the applicability of these recommendations and who is the subject built by the documents of this site.

Methodology

This is a qualitative, descriptive study of theoretical and documentative analysis. We selected the recommendations contained in the Ministry of Health website called "Aedes Combat". To analyze the collected material, we used the proposal of Pohlmann[16] on the methodology of analysis called "Collective Mindsets Analysis" (CMA). The objective of the methodology is to reconstruct the collectively recognized cultural perception, the knowledge inventory and the normative rules underlying the analyzed material. The steps were: selection; abstraction (of logic and of normative structure in the arguments eliminating what is not necessary to understand the categories); order abstraction (logic and normative order of the arguments and their identification); Comparison; identification of rules of interpretation; contextualization (under which social conditions were they produced); explanation (explain how these rules are produced in the social context analyzed and what are their consequences).

To carry out the analysis by means of this method is not a way of limiting the analysis to a static state of the social reality, but rather allows the study of the multiple patterns that are expressed in realities, be they are complementary or conflicting.

The results of this article are structured from three thematic axes: Guidelines on sexual and reproductive health, attention to pregnant and newborn; Recommendations on vector and environmental control; the subjects of public policies. We aim to answer the following questions: what are the recommendations of conduct formulated by the Ministry of Health? What are the possibilities for implementing these recommendations? To whom are they addressed?

Results and discussion

Guidelines on sexual and reproductive health, care for pregnant women and newborns

The orientations directed to the health professionals stated in the material "Integrated guidelines for surveillance and health care in the scope of the public health emergency of national importance" (Ministry of Health[17]), advocate health education, offering information on sexual and reproductive health; the expansion to access for reproductive planning to men and adolescents; guidance on types of contraceptives and use of condoms for disease prevention; the identification of pregnancy and prenatal follow-up.

Throughout the text, terms such as sexual and reproductive health were mentioned. However, there is only talk of promoting sexual health and reproductive health, without explaining what these mean, requiring health teams to perform this task:

> [...] health teams should reinforce actions to provide and expand access to contraceptive methods for the population and to accompany women, including the adolescents in their territory, considering the co-responsibility of men for reproductive planning[17].

If it is necessary to make explicit the need for man's co-responsibility for reproductive planning, it is understood that the document starts from the premise that men are not responsible for reproductive planning, nor does it specify how health teams can stimulate the men's participation.

Most of the recommendations refer to ensuring access to contraceptive methods, guiding them about the use of condoms and their role in STD, HIV and AIDS prevention. However, the role of the condom in preventing the sexual transmission of the Zika virus is not talked about. This possibility appears only in the body of the text that precedes the recommendations and not in the recommendations themselves.

> It is important that those women and men, including adolescents, who wish to have children receive the necessary guidance from health professionals about Zika virus prevention and care needed to prevent such infection during pregnancy, including sexual transmission[17].

Regarding the passage cited, it is necessary to highlight: it is the first moment in which the possibility of having children and sexual transmission is described. The second moment in which sexual transmission appears is in the text after the recommendations:

> Considering the reports in the literature on the sexual transmission of Zika virus, as well as the identification of viral particles in semen of individuals with signs and symptoms suggestive of Zika virus infection, the Ministry of Health reinforces the orientation of use of male and female condoms by the population, especially pregnant women and their partners, in all sexual relations[17].

Regarding sexual transmission, it is recommended to use condoms, however, when this guidance comes along with the possibility of having children, the possibility of contamination is not made explicit when trying to become pregnant. Because the virus did not discern the intent of sexual activities, it would be expected that there would be more clarification on the possibility.

The document reinforces the guarantee of "access to the Rapid Pregnancy Test for early detection of pregnancy and offers counseling according to the results, respecting the autonomy of women ..."[17]. However, we emphasize the incongruity between pregnancy and female autonomy. It is not possible to respect the feminine autonomy with regard to pregnancy if the woman does not have the possibility to choose an abortion. And for those who will remain pregnant, it is imperative that they perform prenatal care. However, the possibilities are: If not pregnant, use one of the available contraceptive methods or do a preconception planning; if pregnant, perform a prenatal. There is no room for autonomy if the choices are delimited. Baum[18] warned of this same gap in the material "Protocol on Health Care and Response to Microcephaly Occurrence Related to Zika Virus Infection"[19], focusing both on problems of access to contraceptives, on the percentage of unplanned pregnancies and on abortion being a public health issue, mainly due to the multiple social determinants involved in the lives of women who are at risk for Zika.

Ways to avoid unwanted pregnancies are mentioned only with the emergency contraception pill: "All women of reproductive age and at risk of unwanted pregnancy should be guaranteed access to information and use of EC"[17].

If the focus of this guideline were to avoid unplanned pregnancies in a comprehensive manner, other orientations would be necessary, especially those focused on the results of the National Demographic and Health Survey[20] that qualify the profile of women who have more unplanned pregnancies. The recommendation to use emergency contraception pills does not cover all the possibilities of avoiding unwanted pregnancies: women may have used some type of contraceptive method and it failed; the partner may refuse to use contraceptive methods and prohibit their partners use; they may have been victims of sexual violence that did not receive medical help, among other things. There are multiple possibilities of unplanned pregnancies that are not necessarily avoided with the emergency contraception pill.

Despite the volume of publications on the virus, important questions about its influence on the development of congenital Zika syndrome have yet to be answered. Therefore, although the guidance is "on the current situation of cases of changes in the central nervous system of children and their relationship with the Zika virus"[17], it is not possible to first state that the health professional will be up to date, since the publications are in English, secondly, women and men who seek preconception counseling will not have all their doubts answered because they still do not have all the answers. Without sufficient information, it is assumed that there is no possibility of making fully informed choices.

Other recommendations that appear in the protocol are general and are prenatal. These are recommendations that are part of the medical care practice, with no specificity about the characteristics of the babies with the Zika congenital syndrome, nor about access to the health of the populations of the most affected areas. Such disregard tends to weaken communication about risks.

In the material "Protocol of Attention to health and response to the occurrence of microcephaly related to the infection by Zika virus"[19], it recommends actions be taken in health education and promotion of sexual and reproductive health. It guides professionals to realize "an active search of pregnant women without a pregnancy diagnosis for a timely initiation of prenatal follow-up". However, how do you actively search for women who do not have a pregnancy diagnosis?

Regarding contraceptive methods, there is no mention of the sexual transmission of Zika, it is also mentioned that the disease cannot be considered an STD.

Considering the relationship between the occurrence of microcephaly and the Zika virus, the authors of the material "Protocol for monitoring and response to the occurrence of microcephaly and / alterations of the central nervous system (CNS)"[21] recommend that pregnant women and women with possibility of becoming pregnant be informed about certain issues. However, the recommendations are about expected prenatal and health care behaviors, except those that talk about vector control. To illustrate this, the text guides the updating of the vaccination book, which vaccines are suitable for pregnant women, the need to pay attention to teratogenic medicines and care when drinking water, food and medicines in relation to potential damages to the development of the baby. None of the above recommendations are part of the transmission of Zika.

Then the material makes the recommendation "If there is any change in your health, especially in the period up to the 4th month of pregnancy, or in the persistence of a preexisting disease at that stage, communicate this fact to health professionals [...]] "[21]. Again, we have a recommendation that is part of what is already expected in a suitable prenatal, since communicating health changes (which?) and having a preexisting disease is also unrelated to the Zika virus.

In the document, reproductive rights are divided into two possibilities: "if you want to get pregnant" and "if you do not want to get pregnant". For the first, the recommendation is to ask questions to health professionals; for the second it is to look for contraceptives.

For pregnant woman, in the "care" section, the recommended procedures have already been suggested (such as initiating prenatal care and taking vaccines) and to seek health care services in case of fever or pain. For newborns, it is recommended to go to places with screens, to wear long clothing, and to be breastfed. It is recommended to seek health care if you have red patches on the skin, red eyes or fever and to not medicate without medical advice. Again they are symptoms not necessarily related to the Zika virus. The only specific recommendation for the virus, although still superficial, is the evaluation of the newborn's head circumference by a health professional, along with other standard recommendations (foot test, vaccination, child-care consultations). However, as Linden notes[22], not all children born with congenital Zika syndrome have microcephaly.

Among the type of care newborns with microcephaly follow, the guidelines differ only by recommending referrals for early stimulation and follow-ups by different specialists if the baby has neurological, motor or respiratory changes. To guide these specialists, the Ministry of Health has prepared a document[23] with technical information for infant early stimulation and children up to three years old.

Among the other materials available on the "Aedes Combat" website, in the section for "professionals and administrators", it is recommended that these workers seek

> [...] the means available to ensure access to contraceptive methods and to promote sexual and reproductive health education strategies involving women, men, young people and adolescents, reinforcing reproductive planning and providing support for free and informed choices. It is important to strengthen preconception counseling[24].

Again we have the problem of recommendations that infer the existence of female autonomy in what concerns the sexual and reproductive life. For pregnant women, in the section called "Zika x Microcephaly" in regard to care for the newborn, the recommendations are the same. The differences are in the recommendations of finding health care service if "red spots on the skin, red eyes or fever" are observed[25]. Among the recommendations for newborns with microcephaly, the difference is in the communication about social benefits:

> Mothers of children affected by neurological sequelae resulting from diseases transmitted by Aedes aegypti contracted by the Consolidation of Labor Laws (CLT) will have the extension of maternity leave from 120 days to 180 days. In addition, families with children with microcephaly may receive the benefit of continued care (PCB) for up to three years. The aid is a minimum wage of (R $ 880), guaranteed by Social Security[26].

In this section the social condition of the woman appears as an official caretaker. Regarding the benefit of Continuing Care, some data are important: according to IBGE[27], 37.3% of families have a woman as responsible; 33.7% of women have income of up to one minimum wage. Among black women, 40.3% have income of up to one minimum wage. This benefit is paid to the elderly and disabled with a maximum income established. As we know, the mother is the main caregiver and to carry out such care she will have to absent herself from economic work because it is not possible to reconcile work with the care of a child with constant needs and indefinite increase of autonomy and development with the increase of age.

It is not possible to break up the discussion that was made of the Brazilian reality about family configurations. Women are the primary caregivers of children, in addition to caring for domestic work exclusively. Women who have been affected may also have other children - or want to have others - who even without a related disability, also have demands for care that need to be met. In this aspect, the dilemma for the implementation of specific policies emerges once again, for specific demands within the universal health policies.

In the "Ask Questions" section, the question "What is the Ministry of Health's recommendation for pregnant women?" is posed. The answer states the recommendation for the use of "repellents indicated for pregnancy ...", avoiding contact with mosquitoes, and avoiding the accumulation of still water at home or at work [...] Those who live in a high-transmission area of the virus are advised to practice safe sex "[28]. It is also indicated that the repellent should be applied over the clothes and

on exposed skin areas[29]. On another page there is the recommendation of “wearing long-sleeved and light colored shirts and jeans and”[30].

There is no information on specific repellents for use during pregnancy. Again the responsibility is placed on pregnant woman for vector control, now in their work environment; and the new recommendation for contraceptive use only for those who live in high-transmission Zika areas.

Recommendations on vector and environmental control

Among the recommendations made to health professionals contained in the text “Integrated guidelines for health surveillance and care in the context of a public health emergency of national importance”[17], it is recommended that the population carry out the vector control (Aedes aegypti mosquito), prevent mosquito bites and use individual protection measures: use of screens on windows and doors; wearing long clothing - pants and sweaters - whenever possible and if you wear clothes that leave areas of the body exposed, use repellent. In the section on prenatal care, the same actions are recommended, plus “avoiding times and places where there is the presence of mosquitoes; to alert pregnant woman and their partner about control measures such as vector control (elimination of possible mosquito breeding sites in the house), cleaning of the land, proper disposal of garbage and materials and adequate use of water “[17].

Regarding the applicability of some recommendations, the following should be asked: How can mosquitoes be avoided, considering their ubiquity? Since it is a mosquito that lives in urban and domestic environments, avoiding it is very difficult. Wearing clothes that do not match the season hardly catches on due to the discomfort caused. Proper waste disposal makes sense if the place where you live has waste collection, especially if it is sorted, if you have basic sanitation and if there is treatment and a destination for solid waste. For the “proper use of water” there is the prerequisite that its distribution is not intermittent and that it flow through pipes. For the population that has these facilities - which are rights - it makes sense to recommend only using it properly.

In the text “Protocol for monitoring and responding to the occurrence of microcephaly and / or changes to the central nervous system (CNS)”[21], it is recommended that: "Remain, especially during the period between dusk and dawn, in places with barriers that prevent insects from entering. Barriers such as screens, mosquito nets, air conditioning or other available"[21].

However, according to the material produced by the Instituto Oswaldo Cruz, the mosquito is mainly diurnal, although it is opportunistic and can bite during the night (Fiocruz)[31]. The recommendation to go to places with screens on doors and windows and with air conditioning limit the possibility of the population of maintaining a normal life in addition to neatly concealing a specific social class.

The text called “Health Care Protocol and response to the occurrence of microcephaly related to Zika virus infection”[19] contains guidelines on the use of repellents:

> Consult a health professional about the use of repellents and carefully check the concentration of the repellent and the frequency of use for pregnant women on the label. It is recommended to use only products that are properly regulated by the National Agency of Sanitary Surveillance (Anvisa) ('natural' repellents based on citronella, andiroba, clove oil, among others, have no proof of effectiveness nor the approval by Anvisa until the moment)[19].

If these guidelines are for health professionals to pass on to the population, one would expect the safety criteria for repellents to be clarified. Nothing is mentioned about toxicity, which is very important because it is directed towards pregnant women. It is recommended to use ANVISA-regulated repellents, taking into account the directions for use contained on the label. However, the material goes on to say that other substances like (Icaridin or Picaridin, EBAAP or IR3535 and essential oils like citronella) are used in cosmetics and "Although no safety studies have been found in pregnant women, these ingredients are known to be safe for use in cosmetic products according to compendiums of international cosmetic ingredients."[19]. The text goes on to say that these products are regulated by the Center of Disease Control of the United States of America, therefore, would be safe. One of the problems is the mismatch of information: texts that say substances not approved by ANVISA should not be used; another says they can, since they are used in cosmetics. Considering the urgent need to try to mitigate the damage caused by the mosquito, it is recommended to use even if ANVISA has not regulated its use, effectiveness and safety.

In the text aimed to the general population, called "Zika Virus: Information for the public"[32] there is the addition of the recommendation: "Be vigilant as to the cleanliness of your neighborhood. Report the accumulation of litter and debris, or any container that may harbor the mosquito's larva. "This recommendation expresses an increasing tendency to place the responsibility for vector control only under the population, without clarifying the role of the State in this control. Therefore, without defining the attributions to the responsible parties (civil society and state), the text unjustly places accountability on the population, especially those of poor areas.

Also for pregnant women, in the section called "Zika x Microcephaly", there is the recommendation to "avoid the accumulation of still water at home or at work". If we had already criticized the citizen's responsibility for vector control, here we see another aggravating factor: it is not enough to prevent mosquitoes at home, it is recommended (in this case, for pregnant women) to take responsibility for their work environment[25].

It is also mentioned that "mosquito nets provide good protection for those who sleep during the day (e.g., babies, bedridden and night workers)"[30]. Until then the recommendations were of use of screens on doors and windows, some mentioned the possibility of using bed nets, but is this only for those who sleep during the day?

In the "Prevention and Combat" section, instructions are given on the use of bleach in stored water other than for consumption and various other repeated recommendations, among them the mobilization of society around the organization of "a joint effort to combat Aedes aegypti", inviting the "public power, private sector and social organizations to expand participation"[33]. Again we see the importance of accountability for civil society, including the possibility of "inviting" the state to participate in actions.

Subjects of public policy

Who are the subjects to which these public health actions, that were analyzed throughout this article, directed to? Theoretically, it is the health professionals who advise women, men, adolescents and / or the elderly on sexual and reproductive health, and encourage the participation of men in reproductive planning (although this term has not been duly clarified); that respect the autonomy of women for their reproductive life, but provided that this "autonomy" is within what is advocated by the State; that give guidance on the sexual transmission of diseases, presuming that these professionals are able to read and update their knowledge about Zika through national and international scientific publications, which enables them answer all the population's questions, therefore they speak English, pay for the articles and have internet available where they work. They are professionals who advise the population on vector control, drawing the attention of the population on how to keep their environment clean, the need to use long clothing, the use of repellents on top of clothing or on exposed skin, that use of light colors (although at other times they do not specify the color of clothing), to sleep with mosquito nets at night (although they recommend using it for daytime sleepers); which advise pregnant women to use repellents, even if they have not been approved by Anvisa; which guide pregnant women about medicines and food and vaccines that can cause harm to babies, even if none of these guidelines are related to the Zika virus; which advise that any change in the skin, even if it is a symptom of a multitude of things, should seek medical help, which will promptly diagnose.

The target population, theoretically, is the one that has internet at home to be able to access information, which is responsible for cleaning beyond their home, the work area, the hotel they stay in and even the neighborhood, in order to keep the vector under control. Use water appropriately, since it does not need to be stored - and if they store it, place a tarp over it, have sewage, piped water and trash collected and treated. Use only long, light clothing or not, apply repellent on top of the skin or not, goes only to places with protective screens or air conditioning. Has autonomy over their sexual and reproductive life, being able to make informed choices. Women will be caretakers for children with microcephaly, but will only receive financial aid if they are at a defined level of poverty; otherwise, it will be considered by the State that they have enough to care for their children. They live close to places where they will have children's care, which will be fully followed up to when the child is three. And they only go to places without mosquitoes.

Conclusions

There are many problems with the recommendations made by the Ministry of Health. Some examples are that there is no standardization for information: in one moment the clothing should be long and clear, in another part, there is no specification of what color it should be; the use of repellent in an exposed area of the body or over clothing, the use of repellents for pregnant women without full authorization from Anvisa and without safety studies for this population. The State

delegates responsibilities to civil society, to the point of suggesting that the population "invite" the public power in realizing vector control actions.

Few or misleading information regarding the sexual transmission of the virus is provided, in addition to the incipient debate on female autonomy in relation to reproductive and sexual rights.

There are no health care recommendations for female caregivers. Women are the main caregivers of children, as well as responsible for domestic work. This aspect refers to the contemporary debate on how to incorporate demands.

The guidelines that are provided to health and population professionals, as well as public policies, need to be formulated and have the dimension that is according to the specific characteristics of the population most directly affected by them, with consistency, possibility of application and effective attributions of responsibility. Without a real adjustment to the context of those affected, there is a risk of making public policies ineffective.

The analysis of the recommendations made in this article allowed us to identify the fragilities of public policies, especially in relation to the process of communicating risks in contexts of uncertainty, and it is urgent to rethink the articulations and dialogue between the scientific research, public policies, the communication sectors and society.

Authors' contributions

All authors participated actively in all stages of preparation of the manuscript.

Copyright

This article is distributed under the terms of the Creative Commons Attribution 4.0 International License, BY type (https://creativecommons.org/licenses/by/4.0/deed.en).

References

1. Popper K. Conjecturas e refutações. 2a ed. Brasília: Universidade de Brasília; 1982.
2. Freiedman SM, Dunwoody S, Rogers CL. Introduction. In: Friedman SM, Dunwoody S, Rogers CL, editores. Communicatin uncertainty: media coverage of new and controversial science. New Jersey, London: Lawrence Erlbaum Associates; 1999.
3. Lerner K, Gradella PA. Mídia e pandemia: os sentidos do medo na cobertura de Influenza H1N1 nos jornais cariocas. Rev Eco-Pós. 2000; 14(2):33-54.

4. Funtowicz S, Ravetz J. Post-normal science and extended peer communities in the face of environmental challenges. Hist Cienc Saude Manguinhos. 1997; 4(2):219-30.

5. Dick GWA, Kitchen SF, Haddow AJ. Zika virus. I. Isolations and serological specificity. Trans R Soc Trop Med Hyg. 1952; 46:509-20.

6. Feldmann H. Virus in semen and the risk of sexual transmission. N Engl J Med. 2018; 378(15):1440-1.

7. Mead PS, Duggal NK, Hook SA, Delorey M, Fischer M, McGuire DO, et al. Zika virus shedding in semen of symptomatic infected men. N Engl J Med. 2018; 378(15):1377-85.

8. Freitas PSS, Bussinger ECA, Lacerda LCX, Soares GB, Maciel ELN. O surto de Zika vírus: produção científica após Declaração de Emergência Nacional em Saúde Pública. Arch Health Invest. 2018; 7(1):12-6.

9. Diniz D. Vírus Zika e mulheres. Cad Saude Publica. 2016; 32(5):e00046316.

10. Galli B, Deslandes S. Threats of retrocession in sexual and reproductive health policies in Brazil during the Zika epidemic. Cad Saude Publica. 2016; 32(4):e00031116.

11. Ventura M, Camargo TMCR. Direitos reprodutivos e o aborto: as mulheres na epidemia de Zika. Rev Direito Praxis. 2016; 7(3):622-51.

12. Löwy I. Zika and microcephaly: can we learn from history? Physis. 2016; 26(1):11-21.

13. Aiken ARA, Gomperts R, Trussell J, Worrell M, Aiken CE. Requests for abortion in Latin America related to concern about Zika virus exposure. N Engl J Med. 2016; 375(4):396-8.

14. Toppenberg-Pekcic D, Noyes J, Allen T, Alexander N, Vanderford M, Gamhewage G. Emergency risk communication: Lessons learned from a rapid review of recent gray literature on Ebola, Zika, and Yellow Fever. Health Commun. 2018; 34(4):437-55.

15. Ribeiro B, Hartley S, Nerlich B, Jaspal R. Media coverage of the Zika crisis in Brazil: the construction of a 'war' frame that masked social and gender inequalities. Soc Sci Med. 2018; 200:137-44.

16. Pohlmann M, Bär S, Valarini E. The analysis of collective mindsets: introducing a new method of institutional analysis in comparative research. Rev Sociol Polit. 2014; 22(52):7-25.

17. Brasil. Ministério da Saúde. Orientações integradas de vigilância e atenção à saúde no âmbito da Emergência de Saúde Pública de Importância Nacional. Brasília: Ministério da Saúde; 2016.

18. Baum P, Fiastro A, Kunselman S, Vega C, Ricardo C, Galli B, et al. Garantindo uma resposta do setor de saúde com foco nos direitos das mulheres afetadas pelo vírus Zika. Cad Saude Publica. 2016; 32(5):e00064416.

19. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Protocolo de atenção à saúde e resposta à ocorrência de microcefalia. Brasília: Ministério da Saúde; 2016.

20. Brasil. Ministério da Saúde. Pesquisa nacional de demografia e saúde da criança e da mulher 1996 e 2006. Brasília: Ministério da Saúde; 2009.

21. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde. Protocolo de vigilância e resposta à ocorrência de microcefalia e/ou alterações do sistema nervoso central (SNC). Brasília: Ministério da Saúde; 2016.

22. van der Linden V, Pessoa A, Dobyns W, Barkovich AJ, van der Linden Júnior H, Rolim Filho EL, et al. Description of 13 infants Born during october 2015- january 2016 with congenital zika vírus infection without microcephaly at birth – Brazil. MMWR Morb Mortal Wkly Rep. 2016; 65(47):1343-8.

23. Brasil. Ministério da Saúde. Diretrizes de estimulação precoce: crianças de zero a 3 anos com atraso no desenvolvimento neuropsicomotor decorrente de microcefalia. Brasília: Ministério da Saúde; 2016.

24. Brasil. Ministério da Saúde. Combate *Aedes*. Atenção à saúde [Internet]. Brasília: Ministério da Saúde; 2016 [citado 10 Jun 2017]. Disponível em: https://web.archive.org/web/20170127113351/http://combateaedes.saude.gov.br/pt/profissional-e-gestor/orientacoes/139-protocolo-de-atencao-a-saude

25. Brasil. Ministério da Saúde. Combate *Aedes*. Cuidados com o recém-nascido [Internet]. Brasília: Ministério da Saúde; 2016 [citado 10 Jun 2017]. Disponível em: https://web.archive.org/web/20170711054005/http://combateaedes.saude.gov.br/pt/recomendacoes-as-gestantes/cuidados-com-o-recem-nascido

26. Brasil. Ministério da Saúde. Combate *Aedes*. Recém-nascidos com microcefalia [Internet]. Brasília: Ministério da Saúde; 2016 [citado 10 Jun 2017]. Disponível em: https://web.archive.org/web/20170815062853/http://combateaedes.saude.gov.br/pt/gestantes/123-recem-nascidos-com-microcefalia

27. Brasil. Instituto Brasileiro de Geografia e Estatística - IBGE. Estatísticas de gênero: uma análise dos resultados do censo demográfico 2010. Rio de Janeiro: IBGE; 2014.

28. Brasil. Ministério da Saúde. Combate *Aedes*. Dengue, Chikungunya e Zika [Internet]. Brasília: Ministério da Saúde; 2016 [citado 10 Jun 2017]. Disponível em: https://web.archive.org/web/20170609180712/http://combateaedes.saude.gov.br/pt/tira-duvidas

29. Brasil. Ministério da Saúde. Combate *Aedes*. Uso de repelentes ambientais e inseticidas [Internet]. Brasília: Ministério da Saúde; 2016 [citado 10 Jun 2017]. Disponível em: https://web.archive.org/web/20170530182737/http://combateaedes.saude.gov.br/pt/gestantes/121-uso-de-repelentes

30. Brasil. Ministério da Saúde. Combate *Aedes*. Recomendações para as gestantes [Internet]. Brasília: Ministério da Saúde; 2016 [citado 10 Jun 2017]. Disponível em: https://web.archive.org/web/20170601135405/http://combateaedes.saude.gov.br/pt/recomendacoes-as-gestantes/cuidados-na-gestacao

31. Fundação Oswaldo Cruz - Fiocruz. Conheça o comportamento do mosquito *Aedes aegypti* [Internet]. Rio de Janeiro: Fiocruz; 2008 [citado 10 Jun 2017]. Disponível em: http://www.fiocruz.br/ioc/cgi/cgilua.exe/sys/start.htm?infoid=571&sid=32

32. Brasil. Ministério da Saúde. Vírus Zika: informações ao público [Internet]. Brasília: Ministério da Saúde; 2015 [citado 10 Jun 2017]. Disponível em: http://www.ans.gov.br/images/stories/noticias/pdf/Cartilha_Zika_revisada.pdf.

33. Brasil. Ministério da Saúde. Combate *Aedes*. Confira como organizar um mutirão de combate ao *Aedes aegypti* [Internet]. Brasília: Ministério da Saúde; 2016 [citado 10 Jun 2017]. Disponível em: https://web.archive.org/web/20170607074224/http://combateaedes.saude.gov.br/pt/prevencao-e-combate/como-organizar-um-mutirao

Translator: Patrick Medina

Submitted on 03/24/19.
Approved on 06/03/19.