



Public Health Emergency: Assessment of the political cycle in response to microcephaly associated with Zika virus in Pernambuco, Brazil


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Abstract

Objectives: to evaluate the political cycle in response to the public health emergency due to microcephaly in Pernambuco.

Methods: evaluative research, approach and the Modelo Teórico de Análise do Ciclo de Políticas (Theoretical Model of Political Cycle Analysis in the phases: agenda setting, policy formulation and decision making, used as theoretical categories. A total of 13 key informants were interviewed and the findings were triangulated based on document analysis. The theoretical categories studied were: unusual problem agenda setting, insufficient structure and crisis management; policy formulation – guideline development, research management and risk communication; Decision Making Investment Management, Definitions of Institutional Competencies and Investment in Surveillance and Assistance.

Results: the microcephaly event entered the government agenda based on an agenda set up with well-defined problems. The formulation of the policy was based on technical-scientific parameters and incorporated critical issues such as the elaboration of regulations, structuring of services, research and media. The decision-making process was favored by the experience of the team and by the social and media pressure that provided the investment setting, especially directed to the structure of the services and the research performance.

Conclusions: the response to the emergency related to microcephaly in Pernambuco occurred in a logical chained political cycle, intertwined and negotiated in all its phases.

Key words Health evaluation, Policy making, Capacity to respond to emergencies Microcephaly, Public health



Introduction

Public health emergencies (PHE) are a challenge for all countries, particularly those that do not have universal, capillary health systems with the capacity to respond in a timely manner. In recognition of this, the World Health Organization (WHO) drew up the International Health Regulations (IHR), which established a political, legal and governmental mechanism for dealing with collective problems related to the spread of diseases and situations that potentially require global coordination.^{1,2}

Based on the criteria adopted in the IHR, the WHO declared a Public Health Emergency of International Concern (PHEIC) in six situations: Influenza A pandemic (H1N1 in 2009); Wild Polio and Ebola (2014); expansion of cases of Zika virus infection (ZIKV) in 2016; Ebola (2018), and COVID-19 in 2020.³

In Brazil, the ZIKV epidemic began in 2014, but it was not until October 2015 that a change in the number of babies born with microcephaly was detected in Pernambuco, which became the epicenter of this event. In view of the seriousness of the situation and the hypothesis that microcephaly is associated with ZIKV, in November 2015 the Ministry of Health (MH) declared PHE of National Interest. In view of the spread to other territories, the increase in neurological disorders and congenital alterations, the WHO announced PHEII in February 2016.^{4,5}

By January 2017, Brazil had accumulated 2,366 confirmed cases of microcephaly suggestive of an association with ZIKV, accounting for 89.8% of the world's cases.⁶ In Pernambuco, the prevalence of cases was 23.9 per 10,000 live births between the end of 2015 and 2016, higher than most States in the country.⁷ During this period, advances in knowledge associating cases of microcephaly with a congenital syndrome linked to ZIKV occurred rapidly.⁷ However, little has been explored how the formulation of the response to microcephaly-related PHEII has influenced organizational practices and the provision of health services, in order to better understand institutional dynamics.

Ex-post evaluations of unusual situations that required rapid responses can help to build and strengthen public health policies. As a result, an analysis of the institutional response to the situation in the State at the epicentre of the event and the protagonist of public strategies to deal with it will contribute to the organization in facing the future PHEIIs. The aim of this study was

to evaluate the political cycle of the response to the microcephaly public health emergency in Pernambuco.

Methods

An evaluative research focusing on health policies in response to microcephaly-related PHE and their influence on

the organization and provision of services between October 2015 and July 2017 in Pernambuco. The State is 98,146 km² in size and has an estimated population of 9,345,173 inhabitants (2015), 80.0% of whom live in urban areas distributed across 184 cities and the District of Fernando de Noronha. The public health system covers 85.0% of the population and has a care network of 8,125 establishments, 51.5% of which are public.⁸

The analysis used three of the five phases of the theoretical model of the Public Policy Analysis Cycle proposed by Howlett and Ramesh,⁹ which includes: 1) Agenda Setting (AS), defined as the identification of problems on which the government should focus its attention; 2) Policy Formulation (PF), which involves the search for solutions to deal with the situation, defining principles and guidelines; and 3) Decision Making (DM), which corresponds to the coalitions built on the basis of negotiations, including regulations, resources and timing of the intervention.¹⁰

In-depth interviews were conducted and documents consulted to triangulate the data. A previously prepared script was used, based on the theoretical framework and with the following sections: the microcephaly emergency, emergency response, information production, research and communication. The sample was defined cumulatively and sequentially during the fieldwork, carried out between August and November 2017, until saturation of responses was reached.¹¹ The selection was based on the representativeness of the discourse and relevance to the object of study. The inclusion criteria were: having been a member of public policy decision-making or research groups during the PHE; had participated directly in the response to the PHE in Pernambuco throughout the period; being a public worker or manager in the area of management, assistance and surveillance and a national researcher for at least ten years. All the interviews were carried out by just one researcher, in locations (Health Secretaries, Health Units, Universities or residences) and at times chosen by the interviewees. The sample consisted of four management professionals (G1-G4), four care professionals (A1-A4), three surveillance professionals (V1-V3) and two researchers (P1 and P2), all identified with the codes.

We analyzed 279 official documents from the government of Pernambuco, four from the Ministry of Health and two from Fiocruz. They were all retrieved from the *SES* Cievs/PE, the official gazette of Pernambuco, the Ministry of Health and Fiocruz. Details of the main documents analyzed are contained in Supplementary Table 1.

Thematic content analysis was carried out by adapting the stages proposed by Bardin¹²: 1) Pre-analysis - recording and transcribing the interview and reading the data; 2) Exploring the material - 2.1) Pre-defined theoretical categorization based on the three phases

of the political cycle (AS, PF, DM); 2.2) Definition of Themes - identification of keywords representative of the phases of the political cycle in the interviews (Table 1), incorporation of their core understanding into the text, grouping by similarity of theme; 3) Treatment of results - frequency of appearance of the theme according to phase, selection of the three most frequent, clipping of excerpts from the interviews and triangulation with documents to verify the facts reported. The inference and interpretation of similar and divergent opinions was carried out in the light of information on the political cycle, the context of insertion and the temporal evolution of the microcephaly emergency. Figure 1 summarizes the methodological model used.

The themes identified (Table 1) were submitted to two independent and separate judges, linked to the academic area and the service, to verify their reliability, in order to ensure rigor in the analysis. The data was systematized in a package developed to help process non-numerical and unstructured data in qualitative analyses, the NUD*IST program (Non-Numerical Unstructured Data Indexing, Searching and Theorising), v4.0, 1997.

The research was approved by the Ethics and Research Committee of the *Complexo do Hospital Universitário Oswaldo Cruz e do Pronto Socorro Cardiológico de Pernambuco* - HUOC/Procape in 2017, CAAE 64419417.1.0000.5192.

Results and Discussion

Among the main findings of the study was that microcephaly entered the governmental agenda from an AS with well-defined problems. PF was based on technical-scientific parameters that incorporated critical issues such as the drafting of standards, the structuring of services, research and the media. DM was favored by the experience of the team, social pressure and the media, which stimulated investment, especially in the structure of services and research.

The interviewees were aged between 35 and 69. Most were female (69.2%), physicians (61.5%), between 10 and 48 years of age, SES employees (76.9%), with experience in PHE (76.9%) and management positions (53.8%) (Table 2).

We identified 185 keywords alluding to the political cycle, with AS being the most mentioned with 41.1% of the terms. By area of activity, the interviewees mentioned assistance, AS (53.3%) and DM (31.7%); management, DM (36.7%) and PF (34.7%); surveillance, AS (38.6%) and PF (31.8%) and research, AS (40.6%) and PF (37.5%) (Table 3). The interviewees highlighted the following phases of the cycle: in AS, *the unusual problem, structural deficiency and crisis management*; in PF, *the*

development of guidelines, research management and risk communication; and in DM, *investment management, definitions of institutional competence and investment in surveillance and care* (Table 4). The details of each phase of the policy cycle and their interrelationship are presented below in terms of the most relevant aspects.

Agenda Setting

In the AS, the interviewees reported difficulties in organizing the policy to deal with what they considered to be an unusual event. Since the AS involves social actors with different views and interests, it generated difficulties in formulating the policy. In this study, three conflicting situations were identified: the definition of the problem as relevant and whether the increase in cases of microcephaly required government attention; the hypotheses about the causes of this increase and knowledge of the problem through the media. This situation has generated concern, uncertainty and fear in the scientific community, health services and society.

The uncertainties were described by some interviewees by the changing characteristics of the birth pattern, with no parameters to give consistency to the hypotheses. Others emphasized the limits to defining strategies due to the lack of research and monitoring of births with congenital malformations in the country, while in the Americas, malformations were already the second leading cause of neonatal death.¹³ In addition, after formulating several hypotheses, the studies tended to accept the one that associated the cases of microcephaly with ZIKV in Brazil, given the space-time coherence between the events.^{14,15}

According to Göttems,¹⁶ a government agenda does not follow an intentional course, but has the characteristics of “the recognition of a problem by society; the existence of ideas and alternatives to conceptualize them and a political, administrative and legislative context favourable to the development of action”. The political context influences the entry of problems onto the decision-making agenda.¹⁶⁻¹⁸ The governmental response to the increase in microcephaly cases as a relevant problem was shaped by the interpretation and experience of the actors involved, media pressure, social commotion and compliance with international agreements,^{10,19} in the midst of global economic crises and national politics marked by a presidential impeachment process.⁷

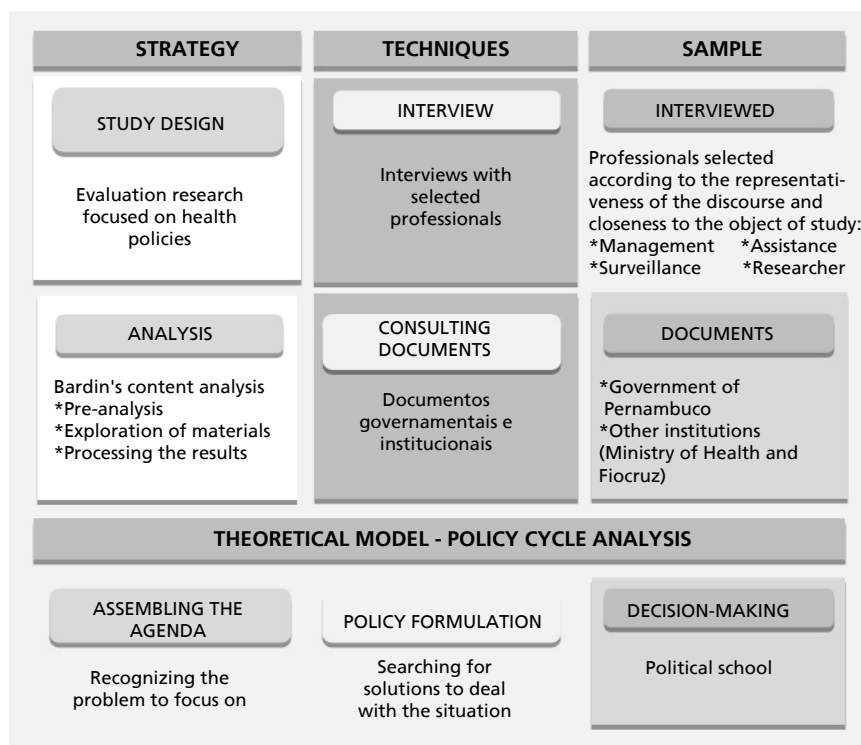
In the context of Brazilian health work, the study shows the importance of a professional career in health for the formation of consistent and experienced teams.²⁰ In addition, previous local experience in dealing with other PHE⁵ has provided professionals with technical qualifications, facilitating the definition of the problem and the formulation of alternatives. Authors believe that the presence of expertise in the face of a problem makes

Table 1
Phases of the political cycle according to keywords used in the survey. Pernambuco, 2017.

Phase of the Political Cycle	Key words
Setting up the agenda	Fragility, insufficiency, problem, limitation, change, crisis, impossibility
Policy formulation	Elaboration, strategy, alternative, solution, answer
Decision-making	Goal, objective, resource, investment, structuring, delimitation

Source: Howlett and Ramesh.⁹

Figure 1
Methodological model of the research. Pernambuco, 2017.



it easier for the issue to be put on the decision-making agenda, making up the flow of solutions.^{16,17}

The interviewees highlighted the structural deficiency of the health services to respond to the routine, which has worsened with the PHE. Public underfunding results in a mismatch between the health needs of the population and the supply of services, which is one of the reasons for the dissatisfaction of SUS users. Research into the perception of mothers of children with microcephaly related to congenital infection attributes underfunding, the fragmentation of the system and the lack of effective public policies as reasons for mothers' dissatisfaction with the care provided to their children.²¹

In all the speeches, the existence of a management crisis in the conduct of actions was highlighted. Difficulties occurred in the areas of surveillance and care, conducting research, defining regulations, resource management and risk communication. There were divergences between what was recommended by the health authorities at State and national level, which was also seen in their protocols.

In addition, research groups and the media were essential in pushing for a government response. Academic participation in the production of research preceded the declarations of the PHE by Brazil and the WHO,⁵ integrated researchers in the management of the crisis and promoted the scientific race in search of answers to the uncertainties of the situation. The integration of researchers and policy-makers is recognized as crucial, even though they do not have governance over the response to social demands. The scientific knowledge produced can indicate political alternatives,^{17,22} since its contribution to the flow of solutions¹⁶ adjusts valid technical-scientific criteria.

The interviewees showed that an international group sought to lead research, to the detriment of locally established guidelines, but government action reaffirmed local leadership. Low-income countries tend to be lenient with ethical and research-related issues, so many groups rely on the lack of scientific production and social contexts in these countries.²³

Table 2

Interviewees' profile. Pernambuco, 2017.		
Variable	N	%
Sex		
Male	4	30.8
Female	9	69.2
Profession		
Physician	8	61.5
Nurse	3	23.1
Dentist	1	7.7
Veterinarian	1	7.7
Function		
Executive Secretary	1	7.7
Director	2	15.4
Manager	4	30.7
Medical assistant	2	15.4
Health Analyst	2	15.4
Researcher	2	15.4
Place of work		
City	1	7.7
State	10	76.9
Federal	2	15.4
PHE experience		
Yes	10	76.9
No	3	23.1

PHE= Public Health Emergency.

Table 3

Distribution of the keywords of the political cycle recruited for the interviews according to the area of activity of the interviewees. Pernambuco, 2017.

Interviewee's area	Phases of the Political Cycle						Total	
	Agenda Setting		Policy formulation		Decision-making		n	%
	n	%	n	%	n	%		
Assistance	32	53.3	9	15.0	19	31.7	60	100.0
Management	14	28.6	17	34.7	18	36.7	49	100.0
Surveillance	17	38.6	14	31.8	13	29.5	44	100.0
Research	13	40.6	12	37.5	7	21.9	32	100.0
Total	76	41.1	52	28.1	57	30.8	185	100.0

The attention of the media goes to the problem that helped speed up the AS. There is evidence that publicizing social problems is an instrument of pressure for government bodies, and the media is part of the flow of solutions.²⁴ Despite its importance, the media excessive demand for information, the dissemination of rumors on social networks and the fact that it requires the ability to articulate, the media was also seen as a problem. Social interest in the microcephaly epidemic was revealed by the presence of this topic on 41.0% of the front pages of nine printed newspapers in Brazil.²⁴

Policy Formulation

The transition between the AS and PF phases generated actions without complete knowledge of the problem and required the construction of alternatives as new needs arose. In this phase, the policymakers, based on the alternatives, decide on the actions, based on a clash of ideas involving conflicts, negotiations and limited knowledge of their effectiveness.^{18,25} The institutional diversification of the formulators and their interaction with the implementers are seen as factors that make a policy successful.^{10,17}

Table 4

Interviewees' answers according to the phase of the political cycle. Pernambuco, 2017.

Categories	Themes	Interview fragments
Agenda Setting	Unusual problem	<p>A2: <i>The birth pattern needed to be reliably detected.</i></p> <p>G1: <i>There was no research or technical parameters to guide the actions.</i></p> <p>A3: <i>The lack of a specific laboratory diagnosis led us to a clinical exclusion assessment and we established criteria</i></p>
	Structural deficiencies	<p>V1: <i>The problem was the limitation of professionals to deal with the routine and the emergency.</i></p> <p>V2: <i>The context demanded immediate action and overloaded the services.</i></p> <p>G3: <i>Our first protocol served as the basis for the national one. The Ministry had some different approaches, especially in relation to diagnostic imaging, since in Pernambuco we opted for tomography and they for ultrasound, in order to guarantee greater access to the test.</i></p>
	Crisis management	<p>G3: <i>There was a need for research, but the large number of researchers and institutions led to conflicts over consent, access to services and ethical issues.</i></p> <p>V1: <i>We lost the opportunity to work with the best research service in the world, because of the governance that was stipulated.</i></p>
Policy formulation	Drawing up guidelines	<p>G2: <i>We needed to secure the financial resources and establish the regulations quickly.</i></p> <p>V2: <i>The state supported the municipalities in health and welfare services.</i></p> <p>V2: <i>The case definitions were initially very sensitive, then the parameters became more specific.</i></p> <p>A1: <i>The national protocol took a long time to come out, because it needed to involve the reality of the SUS structure throughout the country.</i></p> <p>G4: <i>Everything happened within a few days. In the beginning, we had to publish a lot of technical documents[...] The high demand for assistance and the spread of cases across the state led us to prioritize solutions for decentralizing and regulating services in the health network.</i></p> <p>A3: <i>The range of services needed was unexplored, as the real extent of the damage to children was unknown.</i></p>
	Research management	<p>P2: <i>The demand for research was high, so researchers were invited to take part in the debates and management of this component.</i></p> <p>P2: <i>The local, national and international media and rumors required a lot of communication.</i></p>
	Risk communication	<p>V1: <i>It was necessary to establish a dialogue with society, which is why communication flows, press conferences and institutional spaces were established to disseminate information [...] If we didn't pay attention to the press, an information vacuum would be created and false rumors would be strengthened among the population.</i></p> <p>P1: <i>Debates were almost inevitable...governments asking women to suspend or postpone the project of having children...People were afraid and worried. We received phone calls from people who had invested in assisted reproduction and didn't know if there was a risk of the material being contaminated.</i></p>
Decision-making	Investment management	<p>V1: <i>The technical response was prepared for health professionals and services.</i></p> <p>V3: <i>Access was free for anyone on the Ciev/PE platform and it was the topic with the highest number of views.</i></p> <p>G4: <i>There has been investment in structuring the service network.</i></p> <p>V2: <i>The state decree made the alert to the population official and made the allocation of resources and the provision of research less bureaucratic.</i></p>
	Scientific Competence	<p>P1: <i>At the time, the Health Department had to take over the activities of its services. We were added as a partner who understood the dynamics of research.</i></p> <p>G1: <i>The decentralization of care took a lot longer when compared to surveillance... In the beginning, it was centralized in the capital, then it was decentralized to the Macro-Regions and Health Regions.</i></p>
	Care and surveillance actions	<p>G1: <i>We had to contract services and the negotiations were different and difficult. Some locations were left without CT scans because the private provider wouldn't accept the SUS price. As a result, users had to travel to more distant health units.</i></p>

For the PF, a single command was defined to lead the actions, led by the State entity. The space for debate was the *Comitê de Operações de Emergência em Saúde Pública (COES)*,²⁶ (Public Health Emergency Operations Committee) where priorities were agreed on the development of guidelines, research management and risk communication. In this space, strategies were established for dialogue with society and risk communication management, which some interviewees highlighted as essential, given the recurrence of rumors surrounding the epidemic.

In the midst of the conflicts inherent in the implementation of public policies,²² in particular the inter-federative ones, interest in prioritizing research groups, pressure for answers from society and uncertainties about developments,^{5,7,15,21} emergency guidelines were established from the COES. The most requested were financial and institutional support; the publication of standards to guide the city health and care services; support to carry out research and risk communication strategies. Political will, coordination and planning are recognized as essential pillars for strengthening the capacity to respond to PHE.¹⁹

One of the interviewees' concerns was the drafting of regulations that would integrate surveillance and care actions, as well as regulating the health network. As this was an unusual problem, there was no national or international experience to guide actions. It began with the classification of notifications to define cases and efforts to integrate services. According to the interviewees, the high number of cases led to increased demand for services, rapid changes in care and many new documents. Authors agree with the interviewees when they point out the need for coordination and integrated planning and its implications for AS and PF to minimize institutional weaknesses to face certain situations, particularly PHE.^{17,19}

This research showed that the intensity of the response from surveillance and care was different at different times. In Brazil, despite the fact that the public management of PHE has legislation that is shared between federations, its operationalization by health authorities has different capacities for action.²⁷ Studies on the IHR corroborate our findings. States and cities have greater capacity to detect, assess and notify than to investigate, intervene and communicate. In addition, they have deficits in organizational activities and in hiring and training staff.²⁷ Small towns have greater difficulty in guaranteeing responses, requiring the support of State and federal entities in order to implement measures.

Risk communication raised the need for political alternatives and acted on two fronts: one aimed at the population and the other at health professionals. Investment was made in increasing the logistics of communication and promoting transparency in the actions

taken. One interviewee highlighted the role of the press in keeping the population engaged, minimizing the noise of myths and rumours. Dealing with communication was as essential as instituting care guidelines. Although the spread of rumors and misinformation is part of the history of global health, real-time communication and dissemination via the internet has amplified changes in social behavior.²⁸ A recent study showed the growing popular interest in health related topics on the internet and social networks and highlighted its value in reducing the spread of misinformation.²⁹ The spread of content challenges authorities to adopt measures to combat fake news, conspiracy theories, magic cures and situations that increase fear, limit effective care and threaten human life.

The interviewees reported experiences with individual and family dilemmas related to ongoing pregnancies and the project of procreation interrupted at the PHE. Many people went to the *SES*, out of fear and apprehension, to find out about the risks involved in reproduction and pregnancy. Similarly, previous studies have pointed out the dilemmas of mothers of children with microcephaly or reflected on the suffering, fears, risks and stigmatization related to PHE and the news dissemination.^{21,24}

Decision-making

The main focus of DM was on care and surveillance actions to transcend the problem. In all public PF, particularly PHE, DM runs parallel to the other stages of the policy cycle. In a short period of time, the AS takes place, the PF takes place, decisions are made and actions are implemented, with dynamic feedback. The course of action adopted, according to the interviewees, pointed to the need to *manage investments*, provide financial support for the proper functioning of *care and surveillance actions*, and *distinguish between care and scientific competencies*.

The DM was characterized by the State Executive Act, which used the law to speed up public administration in the context of the disaster, guaranteeing funding and the use of resources. Ordinary acts, such as ordinances and technical notes, fulfilled the function faster of regulating compulsory notifications, committee formation, information flow, laboratory collection, and among others.^{5,7,26} The alternatives for PF are administrative measures that legitimize and formalize the choices,²⁵ being subject to interpretation by the implementers, and not just uncritical advance¹⁰ The actions of those who decide are cited by authors as being limited by institutional rules and requiring the mobilization of other bodies to achieve the proposed objectives.^{10,22}

The alignment between planning and actions was favored by the multidisciplinary work in the COES, creating a promising environment for the implementation of measures and financial viability. A study shows that

knowledge and scientific evidence, ideas and interests, and capacity and resources²² provide an environment for DM. The implementation of research management, with a local counterpart and national and international investment, was one of the first actions.⁷ Promises without funding represent unfulfilled intentions.^{18,22}

The definition of physical and virtual spaces and official and unofficial means of public communication was essential to establish a flow with the press and manage rumors.²⁸ However, the lack of a communication plan revealed cultural gaps that make it difficult to integrate this issue with the normative work of PHE responses.

In this PHE, surveillance led the planning, strategy-building, structuring and integration of services, which may be related to training in basic surveillance skills and previous experience.²⁷ The intensity of the care response came after surveillance, perhaps because of the structural nature required.

With the increase in the number of microcephaly cases in the countryside, priority was given to investments in decentralizing the care and surveillance network. One of the interviewees highlighted the mismatch between the decentralization of surveillance and care. Despite the investments, there were difficulties in guaranteeing specialized services in places far from the capital, a discrepancy between supply and demand for services in the public network, and obstacles to contracting private services based on the amounts paid by the SUS. As a result, interviewees pointed to children traveling to other cities, in line with what was reported by research in Sergipe.²¹ In order to implement complex policies, such as PHE of microcephaly, stakeholders are required to take dialogic actions to increase the chances of achieving the objectives of the response.²²

Pandemics have exposed the underfunding of the health system in the world. While developed countries with universal service coverage spend an average of 8% of their Gross Domestic Product (GDP) on health, Brazil spends 3.9%.³⁰ The PHE has seen a shortage of hospital beds, intensive care, diagnostic and rehabilitation facilities, while contracting the private sector has not always been possible given to the obstacles that the sector has faced.

The limitations of the political cycle model adopted in this study include the fact that there is no perfect sequential operating mechanism and that the moments of reformulation were not identified, but despite this, its dynamic, successive and interconnected phases added value in understanding the organizational context of PHE of microcephaly. In order to minimize this limitation, in addition to the interviews, institutional documents were consulted as a way of validating what was reported.

Like other policies, the PHE of microcephaly to become part of the governmental agenda followed

a conflictive course, in which it was necessary to formulate alternatives and circumscribed DM. The AS emphasizes the identification of well-defined problems. In PF, technical-scientific parameters were sought and critical issues such as drafting regulations, structuring services, research and the media were incorporated into planning. The experience of the teams, together with social and media pressure, favored rapidly DM and led to investments, especially in the structure of services and research. The current model in the state health system was reorganized and resized to respond to the event in question.

The diversity of factors involved in PHE of microcephaly contributed to understanding the evolution of the administrative, technical, scientific, structural, regulatory, financial and risk communication spectra. The political cycle model proved to be pertinent for identifying problems, alternatives, solutions and decision-making, as well as being didactic for understanding the chain of phases that could be analyzed separately and articulated.

Authors' contribution

Aguiar LR, Frias PG, Quinino LRM, Silva MRF and Miranda Filho DB: conception of the project, analysis and interpretation of the data, writing and critical revision of the manuscript. All the authors have approved the final version of the article and declare no conflicts of interest.

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Supplementary Table 1

Documents consulted on Microcephaly Emergency. Pernambuco, 2015-2017.			
Documents			Subject
Type	Identification	Period	
Decree	GOV/PE nº 42.438	11/19/15	Declares a Public Health Emergency (PHE).
	GOV/PE nº 43.058	05/18/16	Extends Decree nº 42.438.
	SES/PE nº 390	09/14/16	State Compulsory Notification List.
Portaria	SES/PE nº074	03/02/16	Financial incentive for health units that care for newborns with microcephaly.
	MS nº 1.813	11/11/15	Declaration of a Public Health Emergency of National Concern (PHE)
	MS nº 1.682	07/30/17	End of ESPIN.
Resolução	CIB/PE nº 2866	04/25/16	Destina recursos para a ESP de microcefalia
	CIB/PE nº 2872	05/10/16	Includes cities in the Disability Care Network.
	CIB/PE nº 2917	02/19/16	Donation of ten vehicles for arbovirus control.
Protocolo	SES-Clinical and Epidemiological	11/10/15	Epidemiological surveillance criteria and care flow/guidance for pregnant women and newborns with microcephaly - V. 1
	SES-Clinical and Epidemiological	12/02/15	Epidemiological surveillance criteria and care flow/guidance for pregnant women and NB with microcephaly - V. 2.
	MS-Healthcare and response to microcephaly	12/09/15	Health care and response to the occurrence of microcephaly related to Zika virus infection - V.1.1.
Plano	MS-Healthcare and response to microcephaly	12/15/15	Health care and response to the occurrence of microcephaly related to Zika virus infection - V. 1.2.
	<i>SES-Enfrentamento das Doenças do Aedes aegypti</i>	2015/2016	Strategy for tackling diseases transmitted by <i>Aedes aegypti</i>
	SES/SEVS nº 38/15	09/14/15	Circulation of the Chikungunya virus and guidance for health services.
Technical Note	SES/SEVS/DGCD A nº 43	10/27/15	Possible change in the pattern of occurrence of microcephaly.
	SES/SEVS/DGCD A nº 44	12/30/15	Update on the increase in the occurrence of microcephaly.
	SES/SEVS/DGIAEVE nº 34	11/17/15	Immediate entry of the DNV with Congenital Anomaly in the Live Birth Information System (Sinasc).
Technical Reports	SES/SEVS nº 16	12/02/15	Notification and description of Microcephaly in Live Birth Certificates (DNV).
	SES/SEVS/DGCD A nº 47	12/03/15	Monitoring babies reported with microcephaly.
	SES/SEVS nº59	12/09/15	Guidelines for health care on the circulation of the Zika virus.
Management Report	SEVS/DGIAEVE nº 01	01/15/16	Notification and collection of clinical samples from pregnant women.
	SES/SEVS/DGCD A nº 03	03/17/16	They update the operational definitions for notification and epidemiological investigation.
	SES/SEVS/DGCD A nº 27	07/29/16	Launch of the RESP for notification of cases of Microcephaly and/or alteration of the Central Nervous System (CNS).
Ordinary Bill	SES-Microcephaly and other CNS disorders	2015-2017	Epidemiological situation of microcephaly and other CNS alterations (N=180).
	SES-Gestante com exantema	2015-2017	Epidemiological situation of pregnant women with rash (N=71).
Pernambuco Official Gazette	SES Management Report	2015-2018	In all, more than R\$38 million has been invested in actions to combat the diseases transmitted by <i>Aedes</i> .
	PLO nº 616/2015	11/20/15	Establishes microcephaly awareness week.
	Ano XCII, nº 204	11/13/15	Parliamentarian demands action from public authorities.
News	Ano XCII, nº 206	11/17/15	Combating the outbreak of microcephaly.
	Ano XCII, nº 212	11/25/15	Parliamentarians warn against an outbreak in the State.
	Ano XCII, nº 221	11/25/15	Government discusses tackling microcephaly.
Fiocruz	Ano XCII, nº 222	11/26/15	Government requests hearing with President Dilma.
	Administrative acts nº1583	05/12/16	Appointment of civil servants to the Support Center for Families of Children with microcephaly.
	Administrative acts nº1597	05/12/16	Appointment of civil servants to the Support Center for Families of Children with microcephaly.
News	Fiocruz	2016	MERG Portal – Microcephaly epidemic research group – Presentation.
	Fiocruz	02/01/17	Celina Turchi: the Zika detective amid the inequities of microcephaly.

CIB=Comissão Intergestora Bipartite; (Bipartite Interagency Commission); DGCD A= Diretoria Geral de Controle de Doenças e Agravos; (General Directorate for Disease Control); DGIAEVE= Diretoria Geral de Informações e Ações Estratégicas em Vigilância Epidemiológica; (General Directorate of Information and Strategic Actions in Epidemiological Surveillance); GOV=Government; PE=Pernambuco; MS=Ministry of Health; RESP= Registro de Eventos em Saúde Pública; (Registration of Public Health Events); SES=Secretaria Estadual de Saúde;(State Health Secretary); PLO= Projeto de Lei Ordinário; (Ordinary Bill of Law); SEVS=Secretaria Executiva de Vigilância em Saúde (Executive Secretary for Health Surveillance).