

Challenges for the formulation, implantation and implementation of a National Health Surveillance Policy in Brazil

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Abstract *This article examines the evolution of health surveillance policies as actions, models and systems, as well as contributing to the debate about the constitution of the National Health Surveillance Policy (PNVS). The article discusses conceptual elements regarding the notion of health surveillance and its evolution in Brazil and a trajectory is provided in relation to the construction of care models, particularly after the creation of the Unified Health System (SUS). The possibility of using the framework of public policies based on evidence, and methods for analyzing health situations, such as spatial analysis and time series, are highlighted. To conclude, questions are raised regarding the effective creation of the PNVS, and the challenges that the federal executive faces in driving this process.*

Key words *Public health, Health surveillance, Evidence-based public policy, Federal sphere*

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Introduction

The creation of the Unified Health System (SUS), which was promoted by the promulgation of the Constitution in 1988 and established with the publication of the Organic Health Laws in 1990, was a major achievement in terms of social rights in Brazil. However, it also revealed the complexity of the country's epidemiological situation, which was characterized by a triple burden of diseases in the population, the persistence of acute diseases, and the increased relative weight of chronic conditions, as well as external causes¹. What was required was actions that were not simply limited to health prevention and damage control, but which centered on the dynamic nature of the health-disease process. In this context, a care model based on health works on the logic of an articulated and integrated set of actions, which comprise the health situation of the population in a given territory, transcending the institutionalized spaces of the health services system². At that particular moment in Brazil, which was a time of reorientation of health policies, a greater interconnection between 'the control of causes', 'the control of risks' and 'the control of damages' was sought through the redefinition of the object, the means of work, activities, and technical and social relations³.

In the context of Latin American academic literature, health surveillance is inspired by the Cuban model, which is based on a diagnosis of the health status of a population⁴. Diagnosis at the local level, preferably constructed in a participatory way through popular education, reveals the main health problems and guides the actions that can transform reality⁵. The health surveillance system should be equipped with information structures to support decision-making, planning and the ongoing evaluation of interventions in relation to local health problems⁶.

Thus, health surveillance as a model of care is characterized by the following: interventions in relation to health problems; an emphasis on problems that require continuous attention and monitoring; the operationalization of the concept of risk; articulation between health promotion, prevention and care actions; as well as intersectoral and territorial action. Thus, health surveillance values the regionalization and hierarchization of services in the search for the principle of integrality⁷. More recently, in the context of the evolution of assistance practices for policies, health surveillance has been re-thought as a policy, which in part re-signifies the position of

the federal level in the strategic decision-making of this practice⁸.

Considering the context outlined above, this article examines the evolution of health surveillance as actions, models and systems, and contributes to the debate about the constitution of the National Health Surveillance Policy.

A brief history of health surveillance

In historical terms, the term 'surveillance' has been associated with the idea of watching over places and people who were exposed to some degree of contamination or pestilence⁹. The oldest practice adopted for surveillance was isolating sick people to prevent the spread of disease. Some factors in the eighteenth and nineteenth centuries in Europe were central elements in the current practices of 'health surveillance' such as the medical police or state medicine in Germany, urban medicine in France, and social medicine in England¹⁰. Events such as Florence Nightingale's work in the campaign environments during the Crimean War¹¹, the surveillance of puerperal fever by Hungarian physician Ignaz Semmelweis following the death of a large number of women hospitalized at the First Maternity Service of the Vienna Hospital Vienna (1844-1848)¹² and John Snow's study of the modes of cholera transmission in London¹³ were important empirical investigations, which contributed greatly to the creation and institutionalization of surveillance actions around the world.

The first public health measures in Brazil occurred in the late nineteenth century. From that time until the present day, some actions were emblematic in terms of the creation of health surveillance practices, as shown in Chart 1. It should be noted that, in this historical trajectory, health surveillance was not always known as such since its inception.

A history of assistance and health care models in Brazil

The word 'model' has different meanings, and it is used in different contexts and by different people or groups. It is used in both the common sense meaning and also in the scientific context. In both usages it can mean a 'standard'; something to be followed, standardized or strictly observed. It can also represent exemplary people, to some extent or in some circumstances (idols, icons and public figures), and it can also be used to assess forms, formulas or the adaptation of

Chart 1. Historical moments regarding health surveillance in Brazil.

Year	Event
1889	Promulgation of the first Regulation of the Health Services of Ports in order to prevent the arrival of epidemics and enable the safe exchange of goods. Institution of the quarantine of ships.
1904	The 'Revolt of the Vaccine', a popular rebellion against mandatory vaccination
1940s	Programs were organized in the form of national services charged with controlling prevalent diseases such as yellow fever, malaria, tuberculosis and bubonic plague.
1968	Establishment of a regular reporting system to monitor the epidemiological situation of a group of diseases by the Epidemiological Research Center (CIE) of the Public Health Services Foundation (FSESP)
1975	Creation of the National Epidemiological Surveillance System.
1976	Creation of the National Health Surveillance Secretariat within the Ministry of Health.
1980s	Intensification of the process of changes. Creation of the SUS.
1990s	Reorganization of the area of epidemiology and disease control, with the abolition of the National Epidemiology Center (CENEPI) and the creation of the Secretariat of Health Surveillance.
1999	Definition of the national health surveillance system and implementation of the technical area of surveillance in environmental health.
2002	Organization of decentralized and regionalized health surveillance in the workplace.
2004	Publication of Directive GM/MS No. 1,172 and improvement of the decentralization process in relation to health surveillance actions.
2007	Publication of Directive GM/MS No. 1,956/07, which transferred the health management of workers from the Secretariat of Health Care to the Secretariat of Health Surveillance.
2009	Publication of Directive GM/MS No. 3,252/09, which approved guidelines for executing and financing health surveillance actions at the federal, state, federal district and municipal level, as well as defining health surveillance as a permanent analysis of the health situation of the population
2013	Publication of Directive GM/MS No. 1,378, which extends the scope of health surveillance actions, enhancing the decentralization process together with states and municipalities, in accordance with the Pact for Health.

Source: Waldman⁹; Bertolli Filho¹⁴; Scliar¹⁵.

observed reality, such as statistical formulations and forms created by means of elastic material for modeling¹⁵

In the scientific field, the term 'model' is often applied as a synonym for paradigm. The latter is accepted as a simplified representation of reality, in which main components and characteristics are described that distinguish and particularize it. For some authors, the word 'model' is always partial, schematic and conventional, since it does not explain (or ignores) part of the content of the object to which it is linked or is concerned with. It can be represented by a plan (urban, health etc), drawing (geometric or pictorial relations),

mathematical formula (theorem or graph) or an articulated combination of concepts, theories and methods (for example, a simplified organizational form of an economic, health, administrative or educational system)^{3,4}.

In terms of health, an assistance or care model can be understood as a logic that guides actions and interventions in the technical and managerial dimensions of the health system; a *raison d'être* that brings together fundamentals, characteristics and rationalities¹⁶.

In Brazil, throughout the period of the constitution of the field of public health, several models of attention were devised in order to respond

to the health needs and problems of the population; they reflected the models of economic, social and political development that were in vogue in each period^{16,17}. These models were influenced by health movements at the international and national levels (preventive medicine, community medicine, primary health care, health promotion etc), whose legacies were incorporated, in particular, into the SUS.

In the 1980s, the expression 'care models' referred to different forms of organization of health services and how they corresponded to health units with different degrees of technological complexity¹⁸. There was no reference to the standard or specific type of organization of a health services network.

Two (main) hegemonic models were concomitantly consolidated in Brazil – the medical model and the sanitary model^{14,15}. These models are related to the work process, which involves objects, means and activities. Thus, attention models reflect technological combinations that relate to the working environment, presenting a certain way of organizing the existing technical-scientific resources to intervene regarding health risks, causes and damages. The first model, which focuses on individual attention, understands health, disease and care as commodities. It emphasizes the biological dimension and medical practices in order to care for individuals, as well as using the medicalization of health problems and privileging curative medicine, which stimulates medical consumption. The second model focuses on the dimensions of collective needs; it is centered on knowledge that is influenced by North American medicine. It focuses on specific diseases, which are usually communicable (endemic), in the form of campaigns and special programs (mother and child health, vaccination, tuberculosis control etc), using epidemiological and health surveillance as complementary operational structures.

In a counter-hegemonic way, alternative proposals, which developed in the context of the health reform movement (1980-90), have emerged. They emphasize decentralization and the role of municipalities in conducting local politics, replacing or incorporating the aforementioned two main models to change health practices and work processes, as well as reorganizing health attention and care¹⁹. Alternative care models occupy an important place in the health policy scenario in Brazil. In a similar way to the hegemonic models, they have their own characteristics, rationalities and specific organi-

zational forms. They are appropriated in various contexts at the municipal, state and federal levels, sometimes in combination. The following section discusses health surveillance as a proposed model that provides a specific paradigm and structures²⁰.

Health surveillance – models, paradigms and structures

The debate around the meaning of the term 'health surveillance' in Latin America and Brazil revolves around three distinct aspects which are expressed using terminological variations such as 'surveillance of health', 'surveillance in relation to health', and 'surveillance in health'. What unites them as a common axis is the openness to epidemiology, which contributes to the analysis of health problems that transcends the mere systematization of general indicators, and the issue of planning for the organization of systems and services, contributing to the implantation of new practices and new assistance models.

In the 1980s and 1990s, the term 'health surveillance' became associated with a care model that represented an alternative to the hegemonic medical-assistance and health-campaign models. It proposed a restructuring of health practices by incorporating interdisciplinarity, and by articulating knowledge about epidemiology, planning, communication, education, politics, management, geography, and service organization²¹.

Initially, the term 'health surveillance' incorporated the following different concepts: 1) analysis of the health situation, which was limited to epidemiological and sanitary diagnoses, without incorporating actions aimed at coping with the problems; 2) institutional integration between the areas of 'epidemiological surveillance' and 'sanitary surveillance', which recently encompassed the areas of environmental health surveillance and workers' health surveillance, constituting an institutional organizational form; and 3) the redefinition of health practices, organizing health work processes in the form of operations to address problems that require continuous attention and monitoring²². The last of these aforementioned concepts is still in force and it is incorporated, to a greater or lesser degree, in the organizational arrangements of the SUS under the denomination of health surveillance.

The central principles of health surveillance work are as follows: health problems (diseases, patients, health needs and the social determinants of health - risks, causes and damages), and

their relation to territory – the space of relations (powers), and of social production/reproduction; intersectoriality, the possibility of interaction and integration of different sectors responsible for health production; and sanitary practices, the junction of prescribed work with non-prescribed work, both aimed at improving the health of the population. This way of thinking and acting in relation to health implies a continuous process of collecting, analyzing and systematizing data (demographic, socioeconomic, political, cultural, epidemiological and sanitary) to produce information for action. Data and information are produced by different SUS professionals from the three federated entities (union, states and municipalities) and, through the principle of regionalization, by health regions, to understand the health situation and living conditions of populations in delimited territories²³.

Thus, territorial recognition, through the territorialization of information, composes the basic set of health surveillance tools and provides support for strategic-situational planning, which is participatory in nature and which is performed continuously and in an ascending manner within a defined territory. This territorial base contains information concerning the population, social and political organization, culture and the local economy. So, it demands a combination of different technologies (hard technologies such as biomedical equipment and flexible technologies such as social technologies), which are selected to meet certain requirements, such as adequacy, effectiveness and opportunity, to restructure health practices and the organization of the service network²⁴.

Since the health surveillance model contains aspects of service organization, networking, dealing with a diversity of profiles, and the management of the health system, it incorporates both technical and political dimensions. Its scope encompasses methodological resources for the monitoring of living conditions and health through epidemiology; and the reorientation of health services to overcome inequalities in coverage, access and quality of service through the Family Health Strategy, in line with proposals for health promotion²⁵.

In the current scenario, the implementation of the health surveillance model is a complex process that articulates ‘population approach’ (health promotion) with the ‘risk approach’ (health protection) and the ‘clinical approach’ (health assistance), constituting jointly focused technologies directed towards thinking and acting in regards

to health. It is a reference for the formulation of proposals, and a strategy for organizing a heterogeneous group of policies and practices that take specific configurations, depending on the health situation of the population in each country, state or municipality (territories)²⁰.

It should be noted that Brazil, due to its continental dimension, contains large demographic, economic and social differences between its regions (north, northeast, south, southeast and center-west), generating inequality and social inequities, including access to health services, which result in unique morbidity and mortality profiles²⁶. This may be a result of the specific characteristics of the demographic and epidemiological transitions in Brazil, which do not meet the same standards of the model experienced by most industrialized countries, with important differences in fertility and mortality rates between regions, as well as an overlay between stages, in which both communicable and non-communicable diseases²⁷.

Any discussion of the care model within the SUS needs to take account of the aforementioned differences, and it is not possible to defend models that are strictly based on a clinical approach and the cure of patients. On the contrary, there should be an emphasis on the diversity of socio-cultural contexts, which highlight not only the cure of diseases but also the possibility of improving the quality of life of the population at any stage of the health-disease process that an individual or a group might encounter. This is the nature of health surveillance. Thus, the various levels of prevention and organization of health care should be coordinated, emphasizing the development of a broad spectrum of actions ranging from the formulation and implementation of intersectoral policies and social actions to the improvement of living conditions and health, as well as surveillance in relation to sanitary, environmental, epidemiological, nutritional and work-related activities, which have individual and collective causes, risks and damages, and that, nowadays, have working process completely different²⁸.

The transition of health surveillance from a care model to a public policy

The original definition of surveillance essentially corresponds to the detection, analysis and dissemination of information regarding relevant diseases that should be continuously monitored. In other words, it is defined as the continuous

observation of the distribution and trend of incidence of diseases through the systematic collection, consolidation and evaluation of reports of morbidity and mortality, as well as other relevant data and the regular dissemination of information to all who need to know it. Thus, the essential elements of the activity of surveillance, which characterize it and differentiate it from other public health practices, are: (1) continuous, permanent and systematic activity, unlike studies and surveys that are carried out on an occasional basis; (2) a focus on specific results to establish the objectives and goals to be achieved; (3) the use of data directly related to the practice of public health, particularly in relation to morbidity and mortality; and (4) a utilitarian and pragmatic sense of the activity, which ultimately aims to control diseases and not only to increase knowledge about them²⁹.

More recently, with the emergence of non-communicable diseases, the routine of surveillance activities was modified to focus on monitoring life-styles, risk factors and their prevalence, such as obesity, smoking, drug use etc, in order to provide health care. Consequently, the concept of surveillance in public health, incorporating an expanded definition of the continuous and systematic collection, analysis, interpretation and dissemination of data related to health events, is used to reduce mortality and morbidity and to improve health conditions

It should be noted that Directive 3,252/2009 describes health surveillance as follows: epidemiological surveillance; health promotion; surveillance of the health situation; environmental health surveillance; surveillance of workers' health and sanitary surveillance³⁰. In addition, Directive 1,378/2013 expands upon this definition to incorporate the following: the surveillance of the health situation of the population, including the production of analyses that support planning; the establishment of priorities and strategies and the monitoring and evaluation of public health actions; the timely detection and adoption of appropriate measures to respond to public health emergencies; the surveillance, prevention and control of communicable diseases; the surveillance of chronic non-communicable diseases, accidents and violence; the surveillance of populations exposed to environmental health risks; health surveillance for workers; the sanitary surveillance of risks arising from the production and use of products, services and technologies of interest to health; as well as other surveillance actions, which, routinely and systematically, can be developed in public health services, at the various

levels of attention, in laboratories, study and work environments, and in the community itself³¹.

Directive 1378, which revoked Directive 3,252/2009, redefined the components of health surveillance; it regulated the responsibilities of each sphere of government and defined new guidelines for the execution and financing of actions related to the National Health Surveillance System³¹. Some specific provisions should be highlighted, since they defined the next steps to be adopted in relation to health surveillance in Brazil. For example, this directive established a normative discipline of the Qualification Program of Health Surveillance Actions, which was intended to improve health surveillance actions at the state, district and municipal levels, and is regulated by a specific act passed by the Minister of State for Health. There was also a review of the relative values of the Fixed Floor of Health Surveillance (PFVS) for the State Health Department and each of the municipalities of the federated unit. Finally, this directive established a tripartite working group for discussion and the elaboration of the National Health Surveillance Policy. As well as substantially changing the level of importance attributed to health surveillance, this guaranteed a path of governability that reflected the institutional capacity of the executive to operationalize health surveillance.

The process of the construction of the National Health Surveillance Policy was then started. Initially, the proposal was to articulate and integrate all areas of surveillance (epidemiological, health, environmental, and workers' health, as well as promoting the analysis of health situations) around a national health surveillance system. IN this direction, since the publication of Directive 1,378/2013, and subsequent to the establishment of a working group composed of representatives of CONASS, CONASEMS, SVS and ANVISA, the federal sphere has sought to coordinate efforts to create a proposal for a basic document in relation to the creation of the National Health Surveillance Policy. The draft of this document, which was presented in 2014 at a meeting of managers at the Ministry of Health, received contributions that were evaluated by the Working Group and then a version of the document was validated to be presented to stimulate discussion within society as a whole (including health managers, specialists, professionals and service users) via the National Conference on Health Surveillance. It was then to be passed through the Tripartite Interagency Committee and the National Council of Health³².

This document is intended to define the basic foundations of the organization and practices of health surveillance within the Unified Health System in order to promote and protect the health of the population. To this end, it seeks to organize the principles, directives and responsibilities of the PNVS, organizing the work of health surveillance, based on its work processes and its role in the health care network.

PNVS adopts some principles, i.e. bases or foundations, which are capable of directing values in the individual and collective spheres. Some of these principles are common to those guiding the Unified Health System itself. Those that particularly stand out are the use of epidemiology, and health and environmental risk mapping to obtain knowledge about a territory, the establishment of priorities in planning processes, the allocation of resources and programmatic orientation; and the articulation of health surveillance actions with the other actions and services that are developed and offered by the Unified Health System (SUS) to guarantee the integral nature of health care for the population³³.

Regarding the guidelines, i.e. those that support the actions and explain the purposes of the policy, the most noteworthy of these are the comprehensive nature of actions aimed at public health, either individually or collectively, provided by surveillance services regarding health, epidemiology, environmental health, occupational health and workers' health in all relevant points (the inclusion of environmental health and workers' health is important because this complements article 198 of the Federal Constitution); the inclusion of health surveillance actions throughout the health care network, and especially in primary care, as the care coordinator; and the integration of work practices and processes in relation to the surveillance of epidemiology, sanitation, environmental health, workers' health and public health laboratories - preserving their specificities, sharing knowledge and technologies, promoting multi-professional and interdisciplinary work (in other words, recognizing the diversity of work processes that are internal to health surveillance, but seeking to integrate them)³⁴.

It should be noted that in May 2016, the Ministry of Health passed Directive 1017/2016, which convened the 1st National Conference on Health Surveillance (CNVS) in an attempt to evaluate and discuss the National Health Surveillance Policy. The theme of the conference will be "Health Surveillance: the law, achievements, and the defense of a quality, public SUS". The CNVS

is expected to occur in the first half of 2017, after preparatory steps that began in the second half of 2016.

Challenges for the public health surveillance policy

From the point of view of public health policies, reducing social disparities has wide repercussions for the population at large because the benefits that are derived extend beyond socially vulnerable groups²⁶. There are major methodological challenges in respect of monitoring these policies. One relevant aspect concerns the actual measures used to assess and monitor social differences and their impact on the occurrence of diseases.

Although they are still under the aegis of the Health Surveillance Secretariat, there is still a compartmentalisation between the different surveillance systems, even though they are based on similar principles and work processes. Conceptual and operational distancing makes it difficult to integrate these structures to address health problems and to combine different types of knowledge and technologies to intervene in the real world. Furthermore, such distancing does not favor integration with other SUS networks (health care and promotion) and does not consider a territory as a place of social health production, where different actions (promotion, protection and rehabilitation) respond to local needs and problems^{22,35}.

Health surveillance actions analyze the health situation and living conditions in a territorial base in order to propose actions in relation to identified problems and needs. The territory combines an articulated and inseparable set of objects and actions that are constantly dynamic and in movement; therefore, this is a process that is permanently in the process of construction/reconstruction. The interaction between these constitutive elements is mediated by power relations, which affect everyday life and work, and indicate, for the purposes of surveillance, the possibilities and difficulties related to intervention.

There is consensus on the idea that the PNVS will provide guidance, and that its implementation will require changes in the practices that have already been adopted historically. This implies a change in the organizational culture, firstly within the Ministry of Health, which, despite the progress of discussions, is distanced from the Secretariat of Health Care and the Secretariat of Health Surveillance, and secondly within state and municipal secretariats^{26,28}.

The priorities regarding health policies in Brazil are based on the morbidity and mortality profiles of the several states and municipalities within the country, which vary widely from region to region. Using estimates of cases of incident, epidemiological information can be provided that is fundamental for the planning of health promotion actions, early detection and diagnosis at all levels. Thus, recognizing the regional inequalities caused by differences in development is fundamental to decentralizing actions so that they become more effective.

The space that is constructed, and the distribution of the population within it, does not play a neutral role in the formation of social strata. Differences between places are the result of the spatial arrangement of modes of development, i.e. they are determined by social, economic and political needs. It seems reasonable, therefore, to carry out studies that use geo-referencing as a tool so that differences in the spatial distribution of disease rates can be observed. The introduction of space as a unit of analysis in studies can demonstrate the non-randomness of the distribution of rates in a territory, bringing to the fore discussion about the diverse socioeconomic and political situations in Brazilian states and how change occurs in a continuous time frame³⁶.

This discussion, as well as the resources necessary for analyses to be performed, appears to be directly dependent on the capacity of the federal sphere to establish the viability of this type of strategic intelligence. This means maintaining a certain capillarity for states and municipalities with regard to access to the necessary technology, as well as the adequate training of technicians at the three administrative levels in order to maintain a certain homogeneity in the methods of maintaining a flow of information and communication for an integrated analysis of the health situation to occur. As a result, public policies should be directed in an equitable manner in order to meet the requirements of those with greatest needs, guaranteeing accessibility, even for those who use their capacity for mobility between federative levels (municipalities and sometimes states) to solve their health problems³⁷.

Taking into account the application of evidence-based practices represents a notable opportunity to make policies more efficient³⁸. This seems to be a possible way to establish a public health surveillance policy which includes relevant elements, both quantitative (epidemiological, for example) and qualitative (narratives, for example), so that decisions can be taken in the various spheres of power. Evidence-based public policy considers factors such as process analysis (understanding approaches to increase the likelihood of the adoption of policies), content (identifying specific elements of the policy that may be required for it to be effective), and outcomes (documenting the potential impact of the policy).

In all these situations, it is important to ensure the accuracy of information. The data should have a high degree of numerical accuracy, making the information more specific. It is vital to consider the quality of the data, and therefore, an additional effort should be made to correct biases such as the under-reporting of deaths. In addition, policy evaluation should consider periodic effects such as electoral cycles (where policies become the responsibility of government rather than states) and the implementation of specific actions. It is therefore important to locate the main policy makers and to use them to observe the impact of actions.

In general terms, decision-making and policy-making processes sometimes take place in confusing contexts and in complex social systems that are based on not only technology (or the lack of it), but also on cultural norms, either of a geographical or institutional nature, that can restrict access to health services³⁹.

Finally, it is necessary to understand the importance of joint action involving several disciplines, so that the decisions that are taken are appropriate to the territory where they will be implemented. It is necessary to consider the multiplicity of factors involved in the potential success of a policy. Furthermore, for these factors to be correctly listed and connected, it is crucial for the team involved in decision making to have multiple perspectives, with expertise in health, demography, official statistics and public policies.

Collaborations

RM Guimarães, KC Meira, EPA Paz, VGP Dutra and CEA Campos contributed in the planning, literature review, discussion and final review of the article.

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Article submitted 31/07/2016

Approved 04/12/2016

Final version submitted 06/12/2016