



## CASE ON BRAZILIAN PUBLIC HEALTH INFORMATION SYSTEM

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### Abstract

*Brazilian National Health policy of the Ministry of Health has an essential goal regarding the reduction of accidents and illnesses related to labor, through promotion, rehabilitation, and surveillance in the health area. In the context of surveillance, through various health clippings, information is routinely taken on traditional sanitary hazards, notifiable diseases (infectious and chronic-degenerative), environmental risks and accident. Key findings pointed that regardless of its peculiarities, the function of monitoring and evaluating public health unifies the various objects under surveillance, being the information and its tools essential elements of its work process.*

**Keywords:** Health information system, Management, Nursing

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### 1. Introduction

The present work compiles archival research with a descriptive case study, which unit of analysis is the Brazilian health information system (Yin, 1988). The objective is to discuss the effectiveness of the health policies adopted by the National Health Ministry.

Worker's health surveillance system (VISAT), through the Ordinance MS/GM N ° 3,120 of July 1, 1998, is structured as a continuous and systematic action, over time, to detect, know, research and analyze factors technological, social, organizational and epidemiological related to work processes and environments, determining and conditioning the occupational health problems.

Among the guidelines of the National Occupational Health Policy, described in ordinance 1,125 of July 6, 2005, is the structuring of information networks in occupational health, considering a significant challenge in the systematization of information related to Health of the worker of interest to the SUS and the worker solely.

Information Systems (IS) contribute to the means to construct knowledge in health. "The information, depending on the focus you want to assign, has different explanatory and conceptual dimensions. However, it is always the representation of something is to produce a new meaning for something. " (Fernandes, 1993, p.136).

The process of production and dissemination of information presupposes political and economic decisions contaminated by power relations and the creation of knowledge.

In addition to the decision-making process, the quality of information and the SI will depend on the primary data collection, which means ensuring that the relevant set of instruments is adequately completed, the data securely recorded and stored and that is fulfilled in time the data flow to processing, consolidation, analysis, and diffusion.

The information relevant to the knowledge of the worker's health situation must be integrated and articulated in a set that defines the scope and magnitude of the damages and injuries. These are indispensable in the attention to individual health, the approach of joint problems, the establishment of specific policies, and the formulation of plans and programs.

Among the systems and databases of the Ministry of Health that should incorporate information of interest to the occupational health are: The Mortality Information System (SIM); The SUS Hospital Information System (SIH/SUS); The Notifiable Diseases Information System (SINAN); The primary Care Information System (SIAB) (BRAZIL, 2001).

Despite having SI capable of capturing the information, it is still observed the scarcity, inconsistency and/or the policy of disseminating information not reaching the worker or even the professionals directly involved in the attention to this clientele.

Information is an essential instrument in the health care of the worked, as well as there is a need to invest in existing national base reporting systems, debating its function and ability to support the Establishment of specific policies for the worker, increase the capacity of planning, management and health care of the worker.

SINAN information is related to worker's health, which can lead to improvement of the quality of the system in responding to the needs of information in the health care of the worker.

In this study, we analyzed, through the content analysis, the national production on the worker's health information system that can support the planning and management of the national health policy of workers, health programs and projects for this clientele.

This case study is useful for a variety of fields of research, such as Cooperatives (Dias, M.O., 2019, Dias, M.O., and Albergarias, 2019; Dias, M.O. & Teles, 2019; 2019b; Dalacosta, Dias, M.O., Meirelles, 2019; Dias, M.O., 2018; Dias, M.O. & Craveiro, 2019; Dias, M.O., Krein, Streh, Vilhena, 2018; Dias, M.O. & Ramos, 2018; Dias, M. & Teles, 2018). Other businesses

such as craft beer industry (Dias, M.O. & Falconi, 2018; Dias, M. O., 2018); and debt collection negotiations (Dias, M.O., 2019, 2019b; Dias, M.O. & Albergarias, 2019), public administration (Dias, M. O., 2018); agricultural debt collection negotiations (Dias, M.O. 2019, 2019a; Dias, M.O. and Albergarias, 2019, 2019b; Dias, M. O. & Teles, 2018); retail business (Dias, M. O., et al., 2015; Dias, M. O. et al., 2015, 2014); mining industry (Dias, M. O., & Davila, 2018); e-business negotiation (Dias & Duzert, 2017); streaming video industry (Dias, M. O., & Navarro, 2018), business negotiation generational interactions (Aylmer & Dias, M. O., 2018); (d); (e) non-market forces (Dias & Navarro, 2018); carmaker industry (Dias, M. O., Navarro and Valle, 2013, Dias, M. O., et al., 2014; Dias, M. O., et al., 2013); aircraft industry (Dias, M., Teles, and Duzert, 2018; Dias, M.O. and Duzert, 2018); copier industry (Dias, M.O., 2012); Non-governmental organizations (Paradela, Dias, M. O.; Assis; Oliveira, J.; Fonseca, R. (2019); business civil construction (Dias, M.O., 2016); governmental negotiation (Dias, M. O. & Navarro, 2017).

## 2. Theoretical Framework

The theoretical framework presented in this study was subdivided into sections. The first section will cover the national policy on occupational health. The second section is the result of an archival research on health information systems.

### 2.1- *Worker's National Health Policy*

The National health policy of the worker has been in force since 2004 and aims to reduce accidents and illnesses related to work, through the execution of actions of promotion, rehabilitation, and health surveillance. As part of the policy for the health sector, it is subjected to a real and concrete movement of social forces, whose expression intensifies in the dynamics of the local variables present in the relationship between the state and Civil society.

Its guidelines comprise the integral intention to health, the sectoral articulation, the structuring of the worker's Health information network, the support to study and research, the training of human resources and the participation of the community in the management of these actions.

The dynamics that are printed in the Civil society relationship, which in the case of worker's health involves the capital-work relationship, did not incorporate the necessary transformation, capable of responding to the rapid changes that have been imposed on the Brazilian society in this context of democratization and internationalization of the economy.

A striking characteristic in the occupational health policy is the fragmentation of responsibilities, clearly perceived in the existence of countless institutions with attributions of intervention in the area.

The persistence of this partialized logic makes both the execution policy of actions and the individual remain fragmented. The worker, already compromised by the damage to his health imposed by the inadequate conditions of the production processes, is thrown from one side to another, in an irrational and perverse institutional pilgrimage.

The realization of the integration proposal is essential as a strategy of change in addressing the issue, serving to mitigate the existing difficulties, but not to solve them definitively. This fact is because institutional integration, even though it is entirely successful, does not represent the new to the sector.

## *2.2 – Health Information Systems*

The information is defined as the meaning that man assigns to a given. This fact constitutes the necessary support for all human activity (Carvalho & Eduardo, 1998).

The health area for some decades has been a producer segment of an essential and significant volume of data. These data generate information that instrumentalizes the health field for decision making, contributing as a fundamental tool for achieving social goals.

According to Carvalho and Eduardo (1998), "Health information should be understood as an instrument of decision-making support for the knowledge of socio-economic, demographic and epidemiological reality, for the planning, management, Organization and evaluation at the various levels that constitute the unified health system." (p.130)

The information relevant to the knowledge of the health situation must be integrated and articulated in a set that defines the scope and magnitude of the damages and injuries. The different regional characteristics of Brazil and the continuous changes that are processed in the world of work have multiple health effects and set up mutant epidemiological profiles in the working population (Filho, 2004).

Information systems contribute to the means to construct knowledge in health. This requires information on the morbidity and mortality profile, the principal risk factors and their determinants, the demographic characteristics and information about the services, such as the availability of human resources, infrastructure, and financial.

Among the systems and databases of the Ministry of Health that should incorporate information of interest to the occupational health are: The Mortality Information System (SIM); The SUS Hospital Information System (SIH/SUS); The Notifiable Diseases Information System (SINAN); The basic Care Information System (SIAB) (BRASIL,2001).

SINAN was implemented gradually and heterogenic in the federated units and municipalities, from 1993 onwards, without coordination and monitoring by the health manager. In 1998 the CENEPI (National Center of Epidemiology) constituted a committee to develop instruments, define flows and new software for SINAN, besides setting strategies for its implementation throughout the national territory, through the Ordinance Funasa/MS N ° 073 of 09/03/1998 (BRASIL, 1998).

With the creation of the Secretariat for Health Surveillance (SVS) in 2003, the attributions of Cenepi become the responsibility of the SVS.

This system is mainly fed by the notification and investigation of cases of diseases and illnesses that are listed on the national list of compulsory notifiable diseases, and states and municipalities are included in the inclusion of other health problems of Importance in your region.

The effective use permit and realization of the diagnosis of occurrence of an event in the population, and may provide subsidies for causal explanations of the problems of compulsory

notification. It indicates potential risks to which the community is exposed, contributing to identify the epidemiological reality of a given territory.

The systematic use, in a decentralized way, can contribute to the democratization of information, allowing all health professionals access to information and make them available to the population. It can, therefore, become a relevant instrument in the definition of investment priorities, in the planning of actions, evaluation of the impact of health actions or even analysis of the tendency of a given illness.

The objectives are to collect, transmit, and disseminate data routinely generated by the epidemiological surveillance system of the three spheres of government, through a digital and hierarchized network. Specific instruments are established for each type of disease/aggravation that can state data necessary for the management, assistance and surveillance of cases, the collectivity, and the environment.

Information on the work-related risk and morbidity and-mortality profile is fragmented, dispersed in a real mosaic of data, systems and programs, far from representing a networked information system that Picture the risks to health problems determined by the work, which is fundamental to plan the actions of assistance and vigilance, in the line of prevention and health promotion (Silva et al, 2001, p.137).

There are some historical dilemmas in the treatment of information in ST. Firstly, the fact that the system consolidated and considered as an official parameter by the Brazilian state is the CAT system-communication of occupational accidents, processed by Dataprev and managed by social Security.

The paying character of the occupational accident insurance removes from the CAT its epidemiological vocation of recognition and sanitary treatment of the problems, despite that in 1986, when Inamps was beginning to reformulate its area of occupational accidents, in the context of Sanitary reform, was already discussed with Dataprev the transformation of the system.

The proposal not made viable, until today, twenty years later and with all the technological advancement of the information era, was the creation of a dialogue between the health notification systems and the CAT system. In other words, to break with the historical technical-operational inability to establish conversations between the CAT system and other information systems of direct interest in workers' health, such as the socio-economic profile of IBGE and Rais databases; The mortality information System; The hospital information system; The information system of notifiable diseases; And, among others, the primary care information system. The diagnosis, however, is that the systems could even dialogue with each other, but the institutional people do not, fundamentally because of the lack of political decision.

Another fact is that CAT only covers the working population covered by Social security: The formal worker governed by the CLT. Thus, the underreporting of accidents and diseases related to work in Brazil is of enormous magnitude. A recent estimate situates the underreporting of around 80% of these events (Cordeiro et al, 2005). And, in fact, this underreporting estimation is also modest. A single company in the Votorantim group-the Barra Mansa steel Mill, supervised by SUS, in 1992, shows the size of the black hole of the information: "officially, in the years 1989, 1990 and 1991 the company notified about a dozen

accidents. However, the number registered in the company's own medical service was, in the same period, 1196 accidents-120 times the official number!" (Vasconcellos, 1994, p.135) If we are thinking of a strategic model that incorporates other variables of information such as in the areas of production, consumption, environment and development (economical and productive), the situation complicates even more. The technological advancement in the field of health information has not yet incorporated a holistic intelligence with an eye on the health of the Brazilian population, according to their work patterns, consumption and relations with the environment. Undoubtedly, although this is another challenge, as the technological basis for overcoming these problems is already consolidated, we have one more indication that the difficulty of changing the model

### 3. Methodology

This is a descriptive study of a bibliographic review on the thematic health information system of workers in Brazil. First, a retrospective bibliographical survey of the period 2000-2009 was carried out in LILACS and SCIELO databases, using as descriptors the terms "health information system" and "health of the worked". Data were stored in a computerized database and analyzed according to the following criteria: date, journal title, type of research and focus/content. The abstracts of all the studies performed in Brazil were selected and read, and then those who did not have a relationship with the theme in question were excluded.

### 4. Results

A total of 738 articles were collected, of which five were selected after reading the titles and abstracts of them. Only found in the Brazilian Scielo database. Table 1 illustrates the distribution of the articles found according to title, Source, year of publication and objectives:

**Table 1**  
Articles investigated between 2000-2009

Nº	Title	Source	Year	Goals
1	Information systems supporting health work management	Scielo	2009	1) to reflect on the management of health work and how information systems contribute to the strengthening of health actions and processes.
2	Occupational health Information System: Challenges and perspectives for the SUS	Scielo	2005	1) to identify and discuss some challenges and perspectives related to the implementation of a health information system for workers in the context of the unified health system.
3	Production, flow and data analysis of the health information system: an exemplary case	Scielo	2009	1) Analyze the configuration of the health information network based on the analytical design on the production, flow and analysis of data at different levels of health care in relation to the information system of primary care and national registration systems of Patients with hypertension and diabetes.
4	Information and political decision on health	Scielo	2005	1) To verify the incorporation of information systems available in municipal decision-making processes in the health sector.

5	Health information in Brazil: The contribution of RIPSA	Scielo	2006	1) To understand the experience of RIPSA in the context of institutional difficulties and the contradictions of the health sector reform process.
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Among the articles, only one mention specifically about the worker's health information system. The scarcity of literature related to this theme limits the study and leads us to reflect on the need to produce studies on this subject.

## 5. Analysis

After the analysis, based on the objectives of the articles, it was possible to verify the importance of information systems as a tool to support management.

According to Mota & Carvalho (2005), in health care, information is indispensable to individual care and to the approach of collective problems, using the knowledge that generates from direct care in health units to the establishment of Specific policies and formulation of plans and programs.

Information should be understood as an uncertainty reducer, an instrument to detect priority focuses, leading to responsible planning and the execution of actions that condition reality to the necessary transformations.

However, any information system will depend on the primary data collection, which means ensuring that the relevant set of instruments is adequately completed, the data securely recorded and stored and that the data flow is fulfilled in time Until processing, consolidation, analysis and diffusion.

The SUS has a complex range of health information systems of individual basis and national scope, thus allowing to reach a large part of the population of national workers.

Analysis showed that the potential of health information systems (HIS) to cover the portions of workers inserted in activities of the informal market of work, public servants and others is very expressive. Even taking into account the low coverage of the Occupational Accident Insurance (OAI - SAT in Portuguese) of the social welfare and less than one third of the population economically Active (Brazil, 2005).

However, the fragmentation and lack of standardization in the representation and exchange of information, the irrationality and superposition of information, the high development in information technologies at the central levels of management, and its Precariousness in the levels of information collection and processing challenges the logic and functionality of information Systems (Facchini, 2005).

This fact is opposed to the real objective information systems that is to Monitor the production of data to ensure assessments of the health situation of the entire population and thus serve as the basis for the Local level planning as an instrument for care and management practices.

As in the assistance, the systems should focus on the population and their needs, returning all these data in the form and policies that ensure a quality health care and resolute to users, which are the reason of being of all health service.

Facchini (2005) demonstrates in its study that for the population of workers this has not occurred since the systematic collection of information about the health status of the worker and its determinants most of the time not are registered. And when they are, in most cases, information systems are precarious and transformed into a mere bureaucratic routine. There is no pertinent analysis for the answer to questions relevance to the managers, and an approximation with the real health problems of the workers.

As the SUS does not value the work as one of the central categories for the understanding of the health-disease process in the population, especially the determinants it is not surprising that the implantation of any information system, which implies the collection Systematic new data ends up not effecting.

There is a reasonable consensus on the scarcity and inconsistency of information on the real health situation of workers. When analyzed, the data show quality problems, specifically the non-existence of variables of interest for the comprehension of the worker's health/disease process, or the non-registration or underreporting of important variables.

The purpose of making the SIS of the Priority of the SUS is highly desirable and is manifest in several recent government documents (Brazil, 2002; 2005; CNS, 2005; RIPSA, 2003). However, its materialization depends on overcoming significant challenges, with theoretical, instrumental and operational repercussions, both necessary for the production and management of information, as well as its use (Ministry of Health, 2004; Santana *et al.*, 2005).

## 6. Discussion

This study reflects the need to overcome challenges in data collection, production and analysis and the continued dissemination of information about the health status of workers and the population.

In addition, the need for effective implementation of an integrated information system in workers' health.

It should be understood that health management could benefit from information capable of evading priorities for resource allocation, to stimulate inter-sectoral action Synergism, to provide monitoring of Projects and evaluation of results, to guide opinion formers and health professionals.

We observed the need for changes in the notification process since the implementation of occupational accident prevention policies has been hinted by underreporting of events occurring Formal workers, as well as the great misinformation about the informal economy.

They need to be aware of the production of data generated by the services, aiming at expanding the information generated by them. Thus, guaranteeing reliable information to be able to think about the construction of the policy for the area.

The principle of the participation of workers should be their guiding, without which we will continue to write the history of diseases, and never the history of health, as part of a real process of conquest of democracy in Brazil.

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