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Analysis of the academic production in food safety surveillance, 1993–2007

ABSTRACT

The study aimed to analyze the themes related to the area of food safety surveillance that were approached in scientific research studies from postgraduate programs, with potential in-service application. A total of 337 theses and dissertations submitted to Universidade de São Paulo between 1993 and 2007 was analyzed. The results showed that research developed in universities can be applied to health surveillance, mainly regarding orientation to workers in this area in terms of updated practices.

DESCRIPTORS: Dissertations, Academic as Topic. Health Surveillance. Food. Programs of Study. Evaluation of Research Programs and Tools.

INTRODUCTION

Health surveillance is an expressive social practice of public importance, in constant expansion of inclusion and citizenship building, which has established itself as a condition to impose the right to health.² Its integration into the university is becoming increasingly necessary so that the institution also fulfills its social commitment to teaching and research guided by population needs.

Health surveillance activities should follow the technological advances and the consequent changes arising from scientific progress.¹ The emergence of new products and services requires surveillance because they can represent new risks to the population. These risks are aggravated by the process of markets globalization, as commercial and technological competition has intensified and fragmented the production process, extending the offer and commercialization of goods in a global scale. As a consequence of these aspects, new working tools may be required to perform Health Surveillance activities.¹

Universidade de São Paulo (USP) has a prominent role in scientific production. Among its postgraduate programs, many have been developing important research in the field of food.

This study aimed to analyze issues related to the area of food safety surveillance covered in dissertations and theses submitted to postgraduate programs of USP.

METHODS

The study focused on theses and dissertations that could, directly or indirectly, subsidize the practice of food safety surveillance. Such studies were developed in postgraduate programs of USP in the period from January 1993 to December 2007. This period was chosen due to the relevant transformations that occurred in the practice of health surveillance in Brazil; for example, Directive 1,428/93

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of the Ministry of Health and the creation of Agência Nacional de Vigilância Sanitária (ANVISA) by Law 9,782/99.

To survey the samples, the following databases were consulted: a) DEDALUS – the collections of the libraries of USP, and b) the SABER portal, which contains the theses and dissertations developed at USP. The search in these databases was performed by means of descriptors related to the field of food.

Initially, the studies were selected according to their titles. This was followed by an exploratory reading of the abstracts. The publications of interest were obtained in electronic format or by direct search in USP's library collections.

All the studies were read, summarized, and analyzed; the relevant information, like the findings, date of presentation and context of quotation, was included in an appropriate file. Each study was identified by an alphanumeric code composed of the last two digits of its publication year and the initial of the postgraduate program followed by a number in ascending order, so that the study could be easily found during data analysis.

Of the 402 theses and dissertations that were researched, 65 were excluded, either because they had no relation to food safety surveillance or because they were not found in the library of the institution of origin. Among the remaining 337 studies, it were analyzed 253 (75.1%) Master's dissertations and 84 (24.9%) doctoral theses.

For the description of the approached themes, the theses and dissertations were distributed into 20 categories, according to the objective proposed by the research.

RESULTS

During the study, a significant increase was observed in the number of studies belonging to the area of food safety surveillance from the year 2000 onwards. The mean of publications/year was 12.4 from 1993 to 2001 and 37.5 between 2002 and 2007.

The Table shows the distribution into categories of the theses and dissertations, according to the research objectives.

It was observed that molecular methods are being more and more used in microbiological studies. This trend started in 2002, when there was a significant increase: from 1.7 to 6.5 studies/year.

DISCUSSION

The increase in the number of theses and dissertations with applicability to the area of food safety surveillance signals a trend of increasing participation of USP in technological research.

The demand for such research comes not only from health surveillance, but from the productive sector. Companies driven by market demands sponsor research on evaluation of production technologies. Many studies attract the interest of the industry because they develop technologies that improve the quality and/or increase the shelf life of its products.

Also noteworthy is the fact that the development agencies in science and technology, such as Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) and Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES), have been stimulating programs for the funding of scientific research and technological development in the field of food.

It was observed that earlier studies were limited to the analysis of microorganisms in food with conventional microbiological methods and bromatological analysis, in which the focus of research was usually the final product - the various stages were not taken into account.

Table. Distribution of the theses and dissertations according to the research objective. São Paulo, Southeastern Brazil, 1993-2007.

Category	n	%
Microbiological analysis of foods	155	38.2
Physical-chemical, nutritional and sensory analysis of foods	63	15.5
Analysis of food conservation methods	42	10.3
Analysis of food irradiation	39	9.6
Residue analysis in foods	35	8.6
Hazard Analysis and Critical Control Points	11	2.7
Analysis of food hygiene procedures	11	2.7
Analysis of minimally processed food	9	2.2
Food consumption survey	9	2.2
Analysis of transgenic foods	8	1.9
Food labeling analysis	5	1.2
Assessment of foodborne disease outbreaks	4	0.9
Analysis of lipid oxidation in foods	4	0.9
Analysis of water reuse	2	0.4
Analysis of sanitary surveillance's conceptual and operational aspects	2	0.4
Comparison between the effects of the organic and conventional farming systems	2	0.4
Characterization of the professionals who train food handlers	1	0.2
Detection of food authenticity or adulteration	1	0.2
Assessment of the bioavailability of synthetic and natural nutrients	1	0.2
Development of a methodology to determine trans fatty acids	1	0.2
Total	405	100

The most recent researches have extended the themes of studies and reflect scientific and technological advances experienced in the present, dealing with transgenic foods, implementation of the Hazard Analysis and Critical Control Points, analysis of minimally processed foods and application of new technologies.

Over time, there was concern not only about the quality of the final product, but of the entire production process, since health surveillance includes not only the sanitary inspection itself, but begins with risk assessment and process analysis.

The results of most of the analyzed theses and dissertations have broad potential for application. For example, sanitary surveillance agencies can use these data to analyze the possible factors that may generate risks to the population and improve their surveillance activities.

It is advisable that the knowledge generated in scientific studies is used in education and qualification courses for health surveillance professionals, aiming at developing practices that are in agreement with scientific and technological development.

Due to globalization and the generation of possible new risks to the health of the population, there was a need for greater emphasis of the health surveillance actions in

the country. Therefore, the qualification of the services for the complete fulfillment of their mission has become essential. In this sense, the scientific research undertaken in universities can be a significant contribution to meet this need.

The universities have come to play the role of collaborators in health surveillance activities in the last years, with the creation and regulation of collaborating centers in health surveillance.

Although with different aims or focuses, all the analyzed theses and dissertations contributed in some way to the knowledge of themes related to the field of food, with direct or indirect potential application in the area of food safety surveillance.

The links between the university and professionals and researchers of the health surveillance area should be strengthened so that knowledge and technologies do not remain limited to the academic environment. To achieve this, it is important that the university creates postgraduate programs in the area of food safety surveillance. In addition, it is necessary that the professionals are informed about the scientific production, qualification courses, refresher courses or scientific seminars that exist in this area, and use this knowledge to implement and improve their actions.

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